

Benchmark details

```
[('base-auto-mark-distinct-oss-7_r6g_8xlarge-407-S-6f201a27a6_arm64-hive_sf1000_orc_part-s2218',
  'baseline'),
 ('auto-mark-distinct-oss-7_r6g_8xlarge-407-S-e113af3daa_arm64-hive_sf1000_orc_part-s2217',
  'auto mark distinct')]
```

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	552	972	52,773	96,616	1.874 TiB	1.676 TiB	1.240 TiB	0.936 TiB	833.520 GiB	1.001 TiB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	auto mark distinct	525	943	50,529	91,644	1.874 TiB	1.674 TiB	1.240 TiB	0.923 TiB	833.482 GiB	1.002 TiB	-4.77	-2.99	-4.25	-5.15	0.00	-0.14	0.03	-1.37	-0.00	0.13

FAILED QUERIES

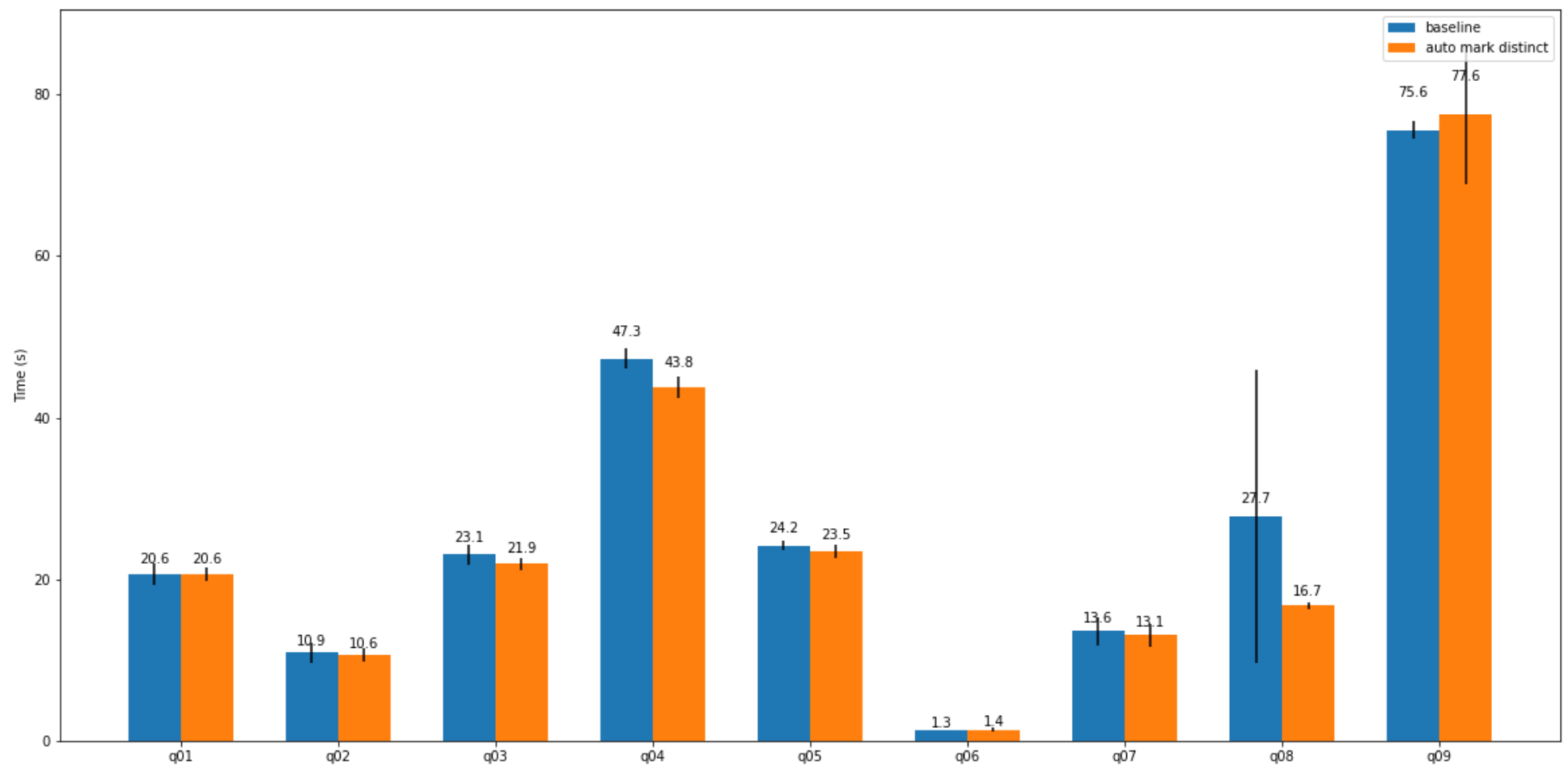
baseline

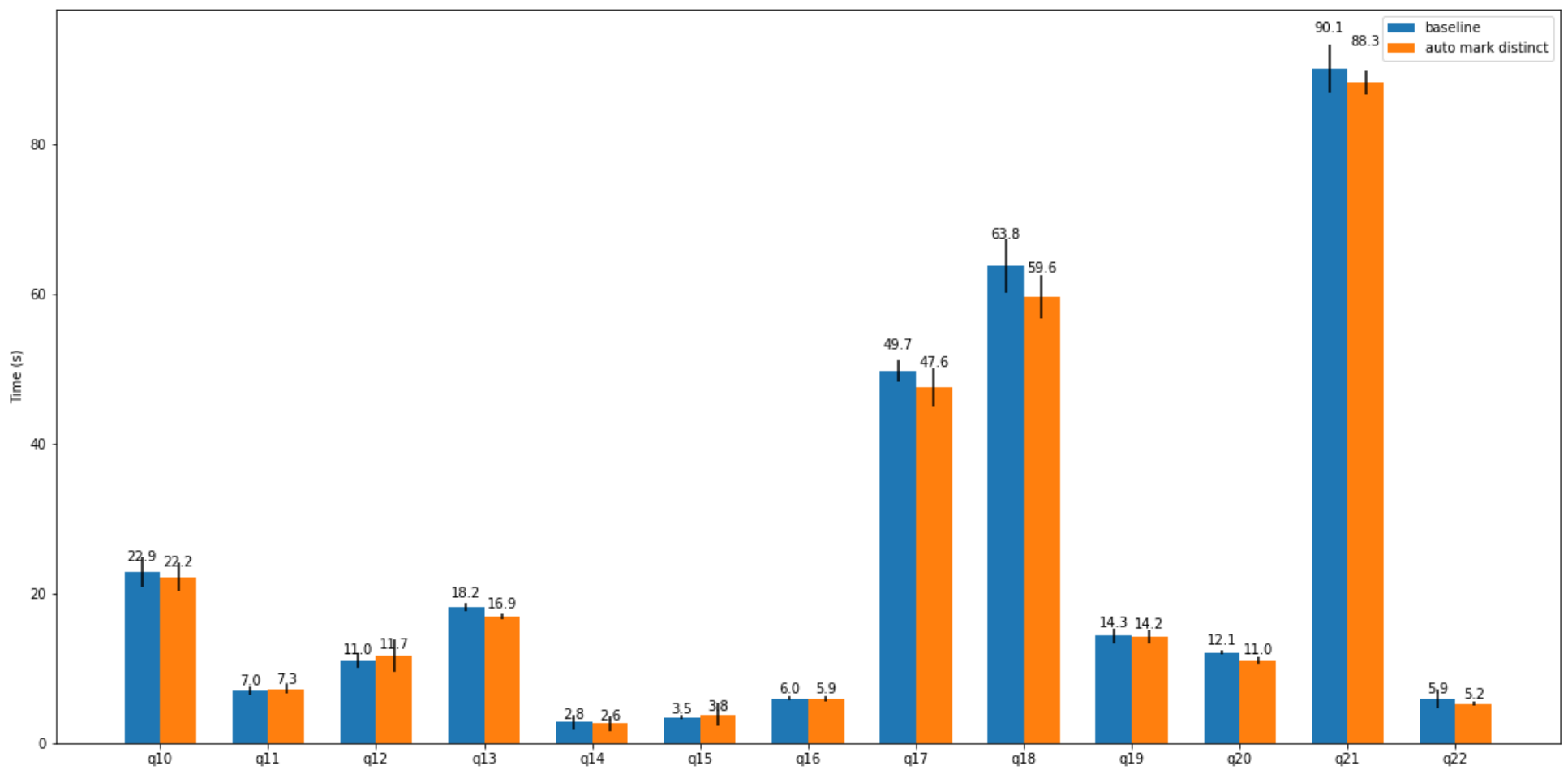
benchmark	query	mean_duration	std_dev
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auto mark distinct

benchmark	query	mean_duration	std_dev
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TPC-H Comparison (DURATION)





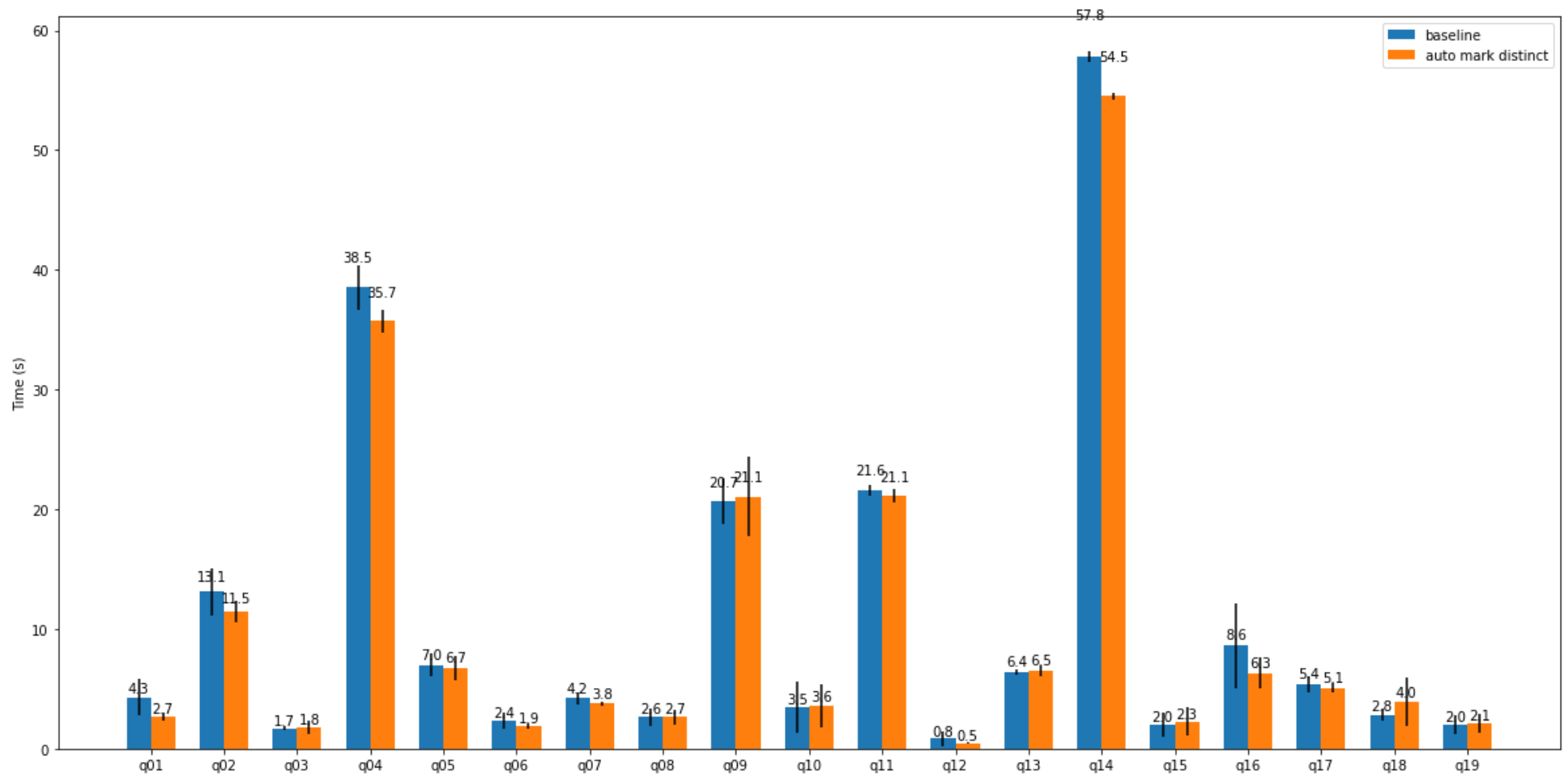
query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
7 presto/tpch/q08	27.75	18.19	16.72	0.42	-39.74	-11.03	65.54	2.52	0.16838
17 presto/tpch/q18	63.79	3.58	59.59	2.85	-6.58	-4.20	5.61	4.79	0.04836
3 presto/tpch/q04	47.32	1.31	43.81	1.30	-7.43	-3.52	2.77	2.97	0.00089
16 presto/tpch/q17	49.73	1.46	47.55	2.52	-4.37	-2.17	2.94	5.30	0.09749
20 presto/tpch/q21	90.09	3.20	88.27	1.57	-2.02	-1.82	3.55	1.77	0.23966
12 presto/tpch/q13	18.16	0.59	16.87	0.31	-7.11	-1.29	3.27	1.83	0.00081
2 presto/tpch/q03	23.06	1.22	21.87	0.73	-5.14	-1.18	5.27	3.32	0.06755
19 presto/tpch/q20	12.11	0.24	10.98	0.43	-9.29	-1.12	2.02	3.96	0.00025
4 presto/tpch/q05	24.16	0.58	23.45	0.76	-2.93	-0.71	2.42	3.26	0.10122
9 presto/tpch/q10	22.86	1.93	22.16	1.88	-3.06	-0.70	8.46	8.46	0.53939
21 presto/tpch/q22	5.93	1.25	5.25	0.30	-11.47	-0.68	21.04	5.67	0.22314

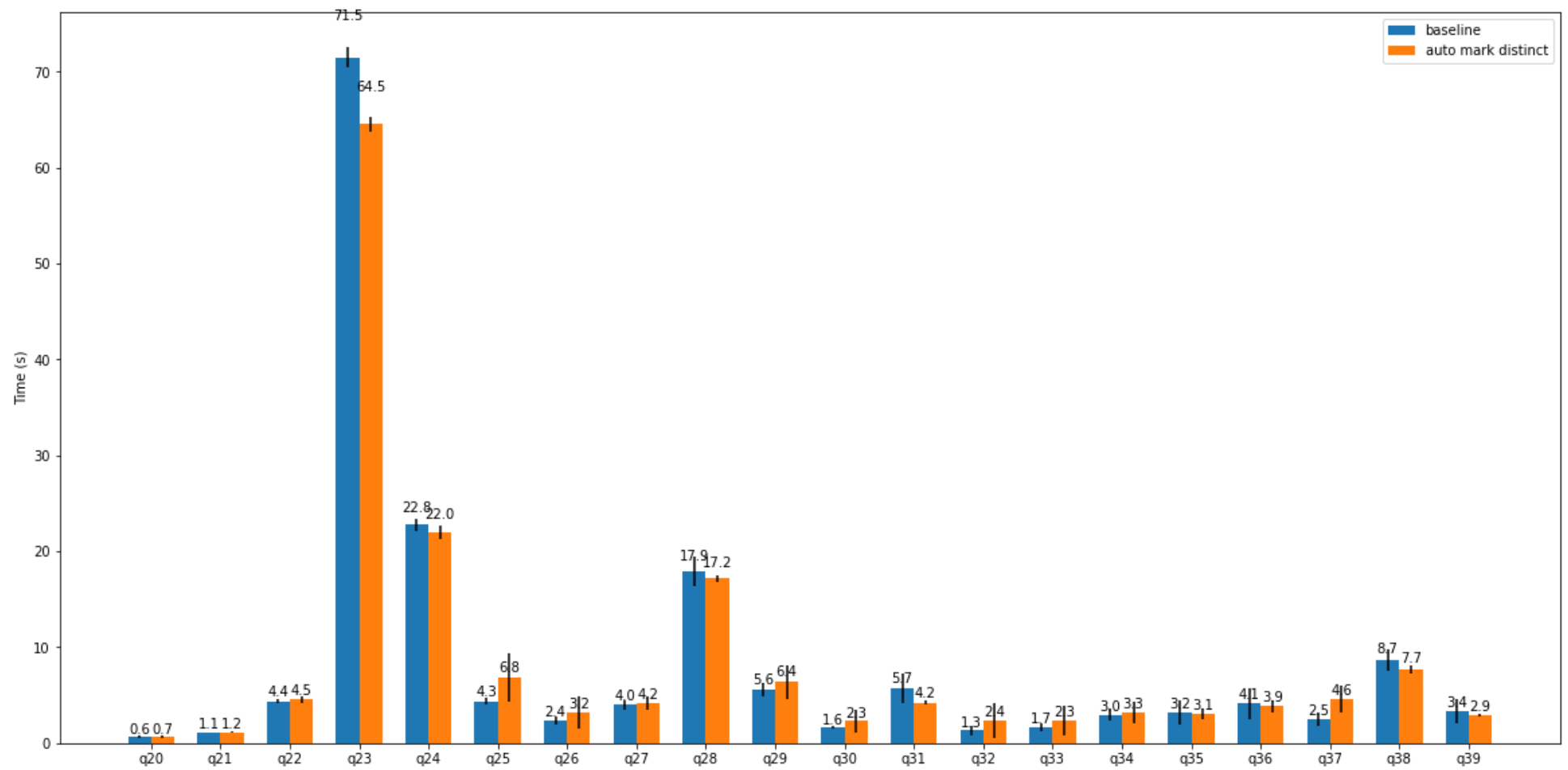
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
6	presto/tpch/q07	13.56	1.73	13.06	1.48	-3.74	-0.51	12.78	11.31	0.59764
1	presto/tpch/q02	10.89	1.22	10.56	0.81	-3.01	-0.33	11.17	7.68	0.59444
13	presto/tpch/q14	2.76	1.02	2.60	1.00	-5.69	-0.16	37.01	38.29	0.79315
18	presto/tpch/q19	14.35	0.98	14.20	0.84	-1.00	-0.14	6.81	5.93	0.78986
15	presto/tpch/q16	5.97	0.32	5.94	0.35	-0.57	-0.03	5.40	5.83	0.86314
0	presto/tpch/q01	20.63	1.36	20.61	0.86	-0.08	-0.02	6.61	4.19	0.98169
5	presto/tpch/q06	1.30	0.05	1.38	0.20	6.05	0.08	3.81	14.62	0.37543
10	presto/tpch/q11	6.99	0.52	7.25	0.67	3.83	0.27	7.47	9.23	0.45750
14	presto/tpch/q15	3.45	0.22	3.81	1.55	10.42	0.36	6.33	40.69	0.58614
11	presto/tpch/q12	11.01	0.99	11.67	2.11	6.04	0.66	8.97	18.07	0.50014
8	presto/tpch/q09	75.64	1.07	77.58	8.63	2.56	1.94	1.42	11.12	0.59700

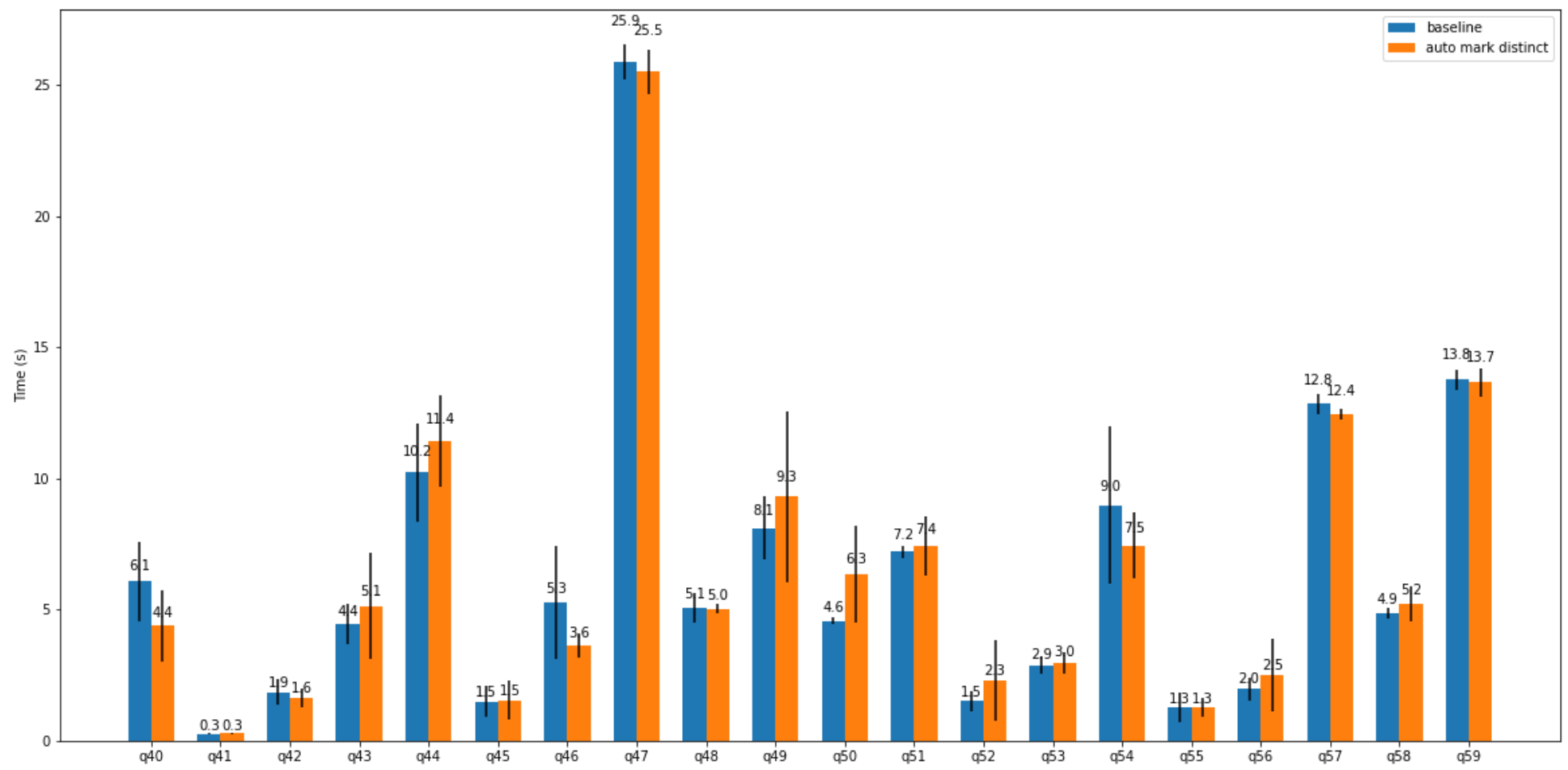
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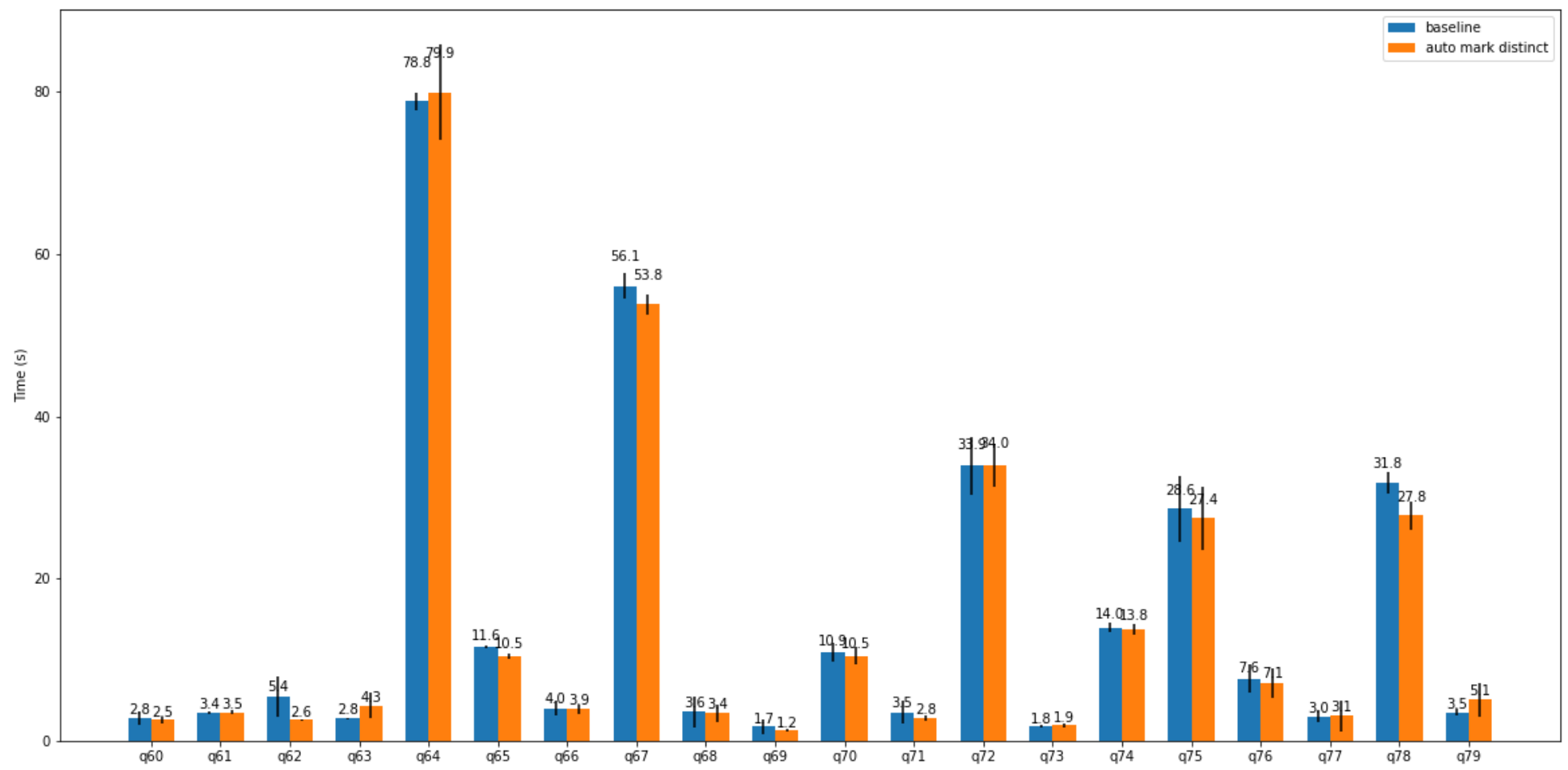
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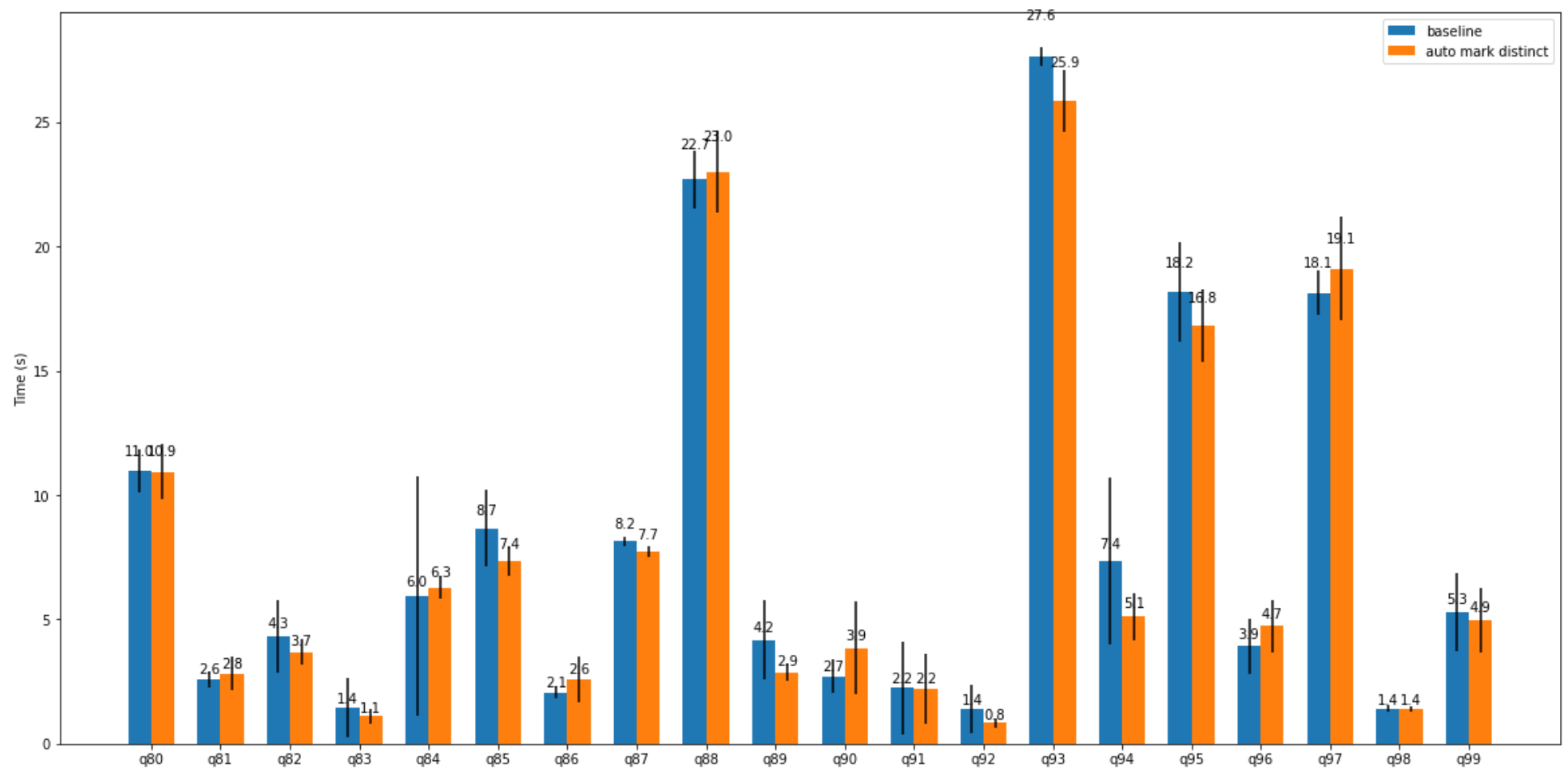
TPC-DS Comparison (DURATION)

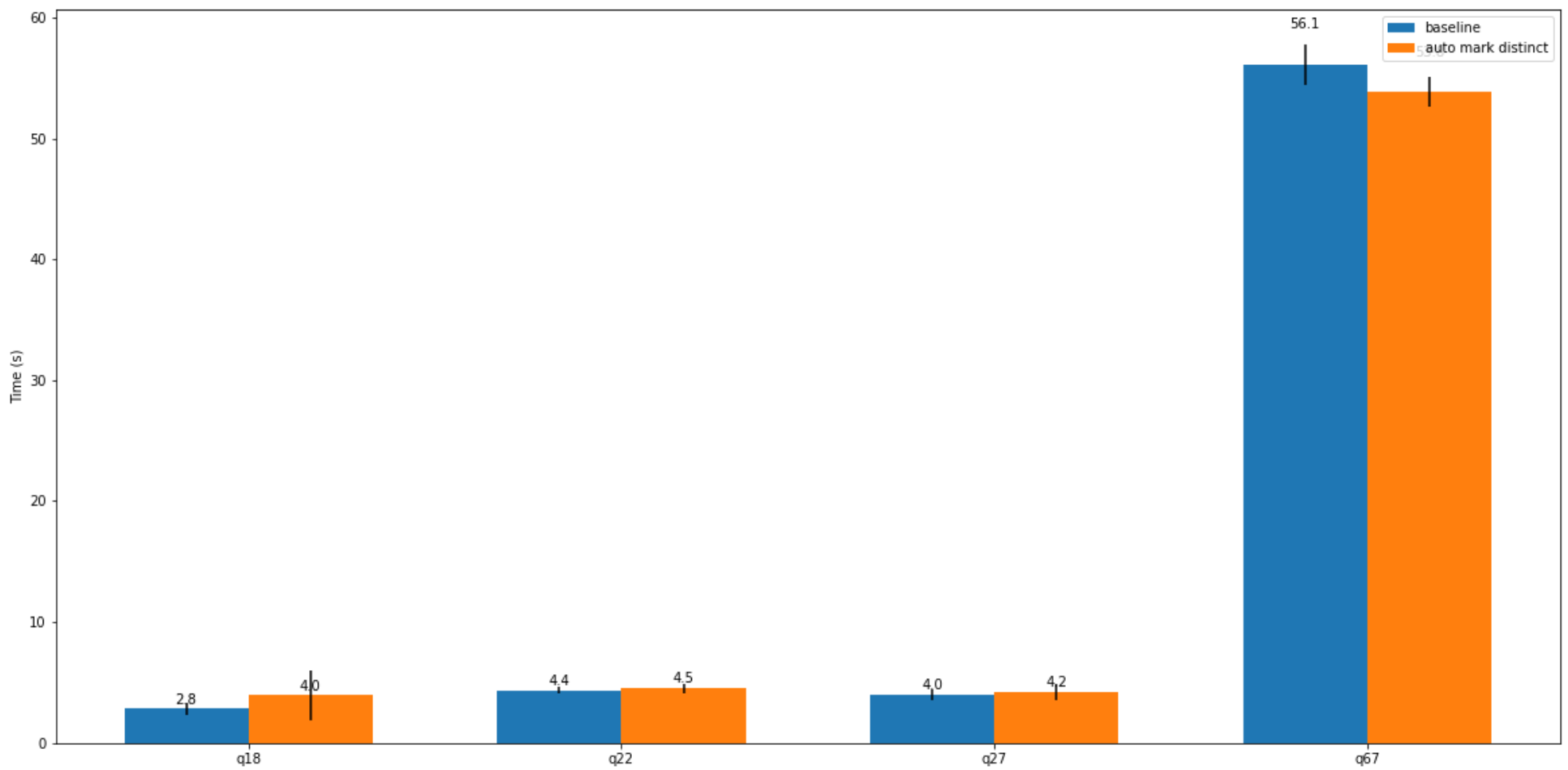












	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
22	presto/tpcds/q23	71.53	1.04	64.54	0.76	-9.77	-6.99	1.45	1.18	0.00000
77	presto/tpcds/q78	31.78	1.38	27.75	1.74	-12.67	-4.03	4.34	6.27	0.00126
13	presto/tpcds/q14	57.81	0.44	54.50	0.26	-5.73	-3.31	0.75	0.48	0.00000
61	presto/tpcds/q62	5.43	2.53	2.56	0.08	-52.74	-2.86	46.55	3.07	0.01966
3	presto/tpcds/q04	38.54	1.83	35.75	0.95	-7.25	-2.79	4.75	2.67	0.00785
15	presto/tpcds/q16	8.59	3.50	6.29	1.30	-26.77	-2.30	40.78	20.63	0.16241
66	presto/tpcds/q67	56.10	1.65	53.83	1.21	-4.05	-2.27	2.93	2.25	0.02159
93	presto/tpcds/q94	7.37	3.35	5.10	0.94	-30.74	-2.27	45.46	18.45	0.14183
92	presto/tpcds/q93	27.63	0.39	25.86	1.25	-6.43	-1.78	1.41	4.82	0.00757
39	presto/tpcds/q40	6.07	1.50	4.39	1.36	-27.79	-1.69	24.72	31.03	0.06861
1	presto/tpcds/q02	13.12	1.97	11.47	0.89	-12.62	-1.66	15.01	7.76	0.08987

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
45	presto/tpcds/q46	5.28	2.15	3.63	0.47	-31.24	-1.65	40.76	13.08	0.09663
0	presto/tpcds/q01	4.30	1.54	2.69	0.30	-37.42	-1.61	35.69	11.32	0.03047
53	presto/tpcds/q54	8.98	2.99	7.45	1.24	-17.05	-1.53	33.24	16.65	0.27287
30	presto/tpcds/q31	5.68	1.52	4.25	0.17	-25.28	-1.44	26.67	3.92	0.04371
94	presto/tpcds/q95	18.18	1.99	16.83	1.46	-7.45	-1.35	10.95	8.65	0.20806
84	presto/tpcds/q85	8.66	1.56	7.36	0.60	-15.01	-1.30	17.95	8.12	0.08495
88	presto/tpcds/q89	4.18	1.60	2.88	0.34	-31.02	-1.30	38.30	11.85	0.08100
74	presto/tpcds/q75	28.58	4.02	27.43	3.95	-4.05	-1.16	14.08	14.41	0.62596
64	presto/tpcds/q65	11.55	0.22	10.47	0.33	-9.37	-1.08	1.87	3.16	0.00005
37	presto/tpcds/q38	8.67	1.13	7.69	0.40	-11.27	-0.98	12.99	5.20	0.07310
27	presto/tpcds/q28	17.93	1.57	17.16	0.32	-4.27	-0.77	8.73	1.85	0.26717
23	presto/tpcds/q24	22.75	0.57	22.00	0.66	-3.34	-0.76	2.50	2.99	0.05824
70	presto/tpcds/q71	3.53	1.40	2.82	0.38	-20.08	-0.71	39.74	13.50	0.25990
81	presto/tpcds/q82	4.34	1.47	3.68	0.52	-15.11	-0.66	33.90	14.09	0.32733
91	presto/tpcds/q92	1.40	0.96	0.83	0.17	-40.31	-0.56	68.76	20.49	0.18785
75	presto/tpcds/q76	7.64	1.69	7.13	1.82	-6.72	-0.51	22.13	25.55	0.62365
38	presto/tpcds/q39	3.38	1.25	2.89	0.10	-14.56	-0.49	36.93	3.54	0.35862
68	presto/tpcds/q69	1.72	0.85	1.24	0.17	-28.25	-0.49	49.46	14.11	0.20042
10	presto/tpcds/q11	21.58	0.41	21.12	0.60	-2.14	-0.46	1.88	2.82	0.14802
6	presto/tpcds/q07	4.23	0.53	3.79	0.18	-10.42	-0.44	12.45	4.86	0.08185
5	presto/tpcds/q06	2.36	0.64	1.92	0.24	-18.59	-0.44	27.00	12.57	0.14588
69	presto/tpcds/q70	10.90	1.18	10.48	1.09	-3.86	-0.42	10.78	10.43	0.53491
86	presto/tpcds/q87	8.15	0.19	7.74	0.23	-5.06	-0.41	2.38	2.99	0.00736
56	presto/tpcds/q57	12.84	0.36	12.43	0.21	-3.15	-0.40	2.82	1.67	0.03936
46	presto/tpcds/q47	25.88	0.67	25.51	0.84	-1.41	-0.37	2.60	3.30	0.42475
11	presto/tpcds/q12	0.83	0.65	0.47	0.04	-43.95	-0.37	78.21	7.53	0.19933
16	presto/tpcds/q17	5.41	0.68	5.06	0.38	-6.46	-0.35	12.49	7.49	0.29507
82	presto/tpcds/q83	1.45	1.17	1.10	0.29	-23.97	-0.35	80.44	26.02	0.49468
98	presto/tpcds/q99	5.28	1.56	4.95	1.30	-6.24	-0.33	29.54	26.36	0.69964
35	presto/tpcds/q36	4.13	1.62	3.85	0.63	-6.76	-0.28	39.32	16.39	0.70302
59	presto/tpcds/q60	2.81	0.80	2.54	0.43	-9.51	-0.27	28.48	17.09	0.48866
4	presto/tpcds/q05	6.99	0.98	6.74	1.05	-3.52	-0.25	14.04	15.64	0.68456
41	presto/tpcds/q42	1.85	0.50	1.63	0.38	-11.83	-0.22	27.02	23.00	0.41119

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
73	presto/tpcds/q74	13.98	0.63	13.79	0.66	-1.33	-0.19	4.50	4.76	0.62640
67	presto/tpcds/q68	3.56	1.91	3.42	1.10	-4.09	-0.15	53.73	32.19	0.87471
58	presto/tpcds/q59	13.77	0.38	13.66	0.52	-0.81	-0.11	2.73	3.82	0.67891
34	presto/tpcds/q35	3.19	1.32	3.08	0.53	-3.47	-0.11	41.38	17.28	0.85285
65	presto/tpcds/q66	4.02	0.87	3.93	0.59	-2.23	-0.09	21.74	15.14	0.83954
47	presto/tpcds/q48	5.08	0.56	5.04	0.17	-0.97	-0.05	10.97	3.31	0.83923
97	presto/tpcds/q98	1.42	0.16	1.38	0.12	-2.57	-0.04	11.23	8.46	0.66123
79	presto/tpcds/q80	10.97	0.88	10.93	1.12	-0.29	-0.03	8.03	10.20	0.95710
90	presto/tpcds/q91	2.24	1.85	2.21	1.40	-1.05	-0.02	82.50	63.27	0.98067
54	presto/tpcds/q55	1.27	0.57	1.27	0.34	0.24	0.00	44.55	26.43	0.99132
40	presto/tpcds/q41	0.27	0.02	0.28	0.02	2.78	0.01	5.89	7.48	0.49869
20	presto/tpcds/q21	1.14	0.01	1.16	0.03	1.78	0.02	1.21	2.84	0.19560
19	presto/tpcds/q20	0.65	0.17	0.67	0.15	3.60	0.02	26.85	22.39	0.80876
7	presto/tpcds/q08	2.63	0.75	2.66	0.62	1.41	0.04	28.47	23.32	0.92757
44	presto/tpcds/q45	1.50	0.60	1.54	0.74	3.22	0.05	40.27	47.78	0.90390
12	presto/tpcds/q13	6.42	0.25	6.47	0.46	0.76	0.05	3.95	7.17	0.82612
2	presto/tpcds/q03	1.72	0.18	1.78	0.52	3.62	0.06	10.72	28.90	0.78584
76	presto/tpcds/q77	2.99	0.76	3.05	1.93	2.23	0.07	25.43	63.22	0.93896
18	presto/tpcds/q19	2.04	0.79	2.12	0.77	3.59	0.07	38.69	36.51	0.87414
52	presto/tpcds/q53	2.88	0.35	2.97	0.40	3.14	0.09	12.06	13.64	0.68697
72	presto/tpcds/q73	1.78	0.10	1.88	0.25	5.68	0.10	5.52	13.04	0.37045
9	presto/tpcds/q10	3.45	2.10	3.57	1.78	3.29	0.11	60.89	49.83	0.92155
71	presto/tpcds/q72	33.89	3.58	34.01	2.64	0.36	0.12	10.56	7.75	0.94766
60	presto/tpcds/q61	3.38	0.16	3.52	0.22	3.99	0.13	4.65	6.18	0.24632
21	presto/tpcds/q22	4.38	0.25	4.53	0.38	3.45	0.15	5.76	8.32	0.43392
26	presto/tpcds/q27	3.99	0.48	4.18	0.67	4.81	0.19	11.95	16.04	0.58068
50	presto/tpcds/q51	7.20	0.21	7.41	1.13	2.96	0.21	2.93	15.22	0.65947
80	presto/tpcds/q81	2.57	0.32	2.82	0.69	9.95	0.26	12.54	24.30	0.42832
33	presto/tpcds/q34	2.97	0.59	3.26	1.13	9.49	0.28	19.85	34.69	0.59930
14	presto/tpcds/q15	1.99	1.06	2.27	1.19	14.20	0.28	52.97	52.45	0.67280
87	presto/tpcds/q88	22.71	1.18	23.02	1.66	1.37	0.31	5.19	7.22	0.71612
83	presto/tpcds/q84	5.96	4.81	6.29	0.48	5.59	0.33	80.72	7.59	0.86935
8	presto/tpcds/q09	20.70	1.95	21.06	3.31	1.75	0.36	9.40	15.73	0.82198

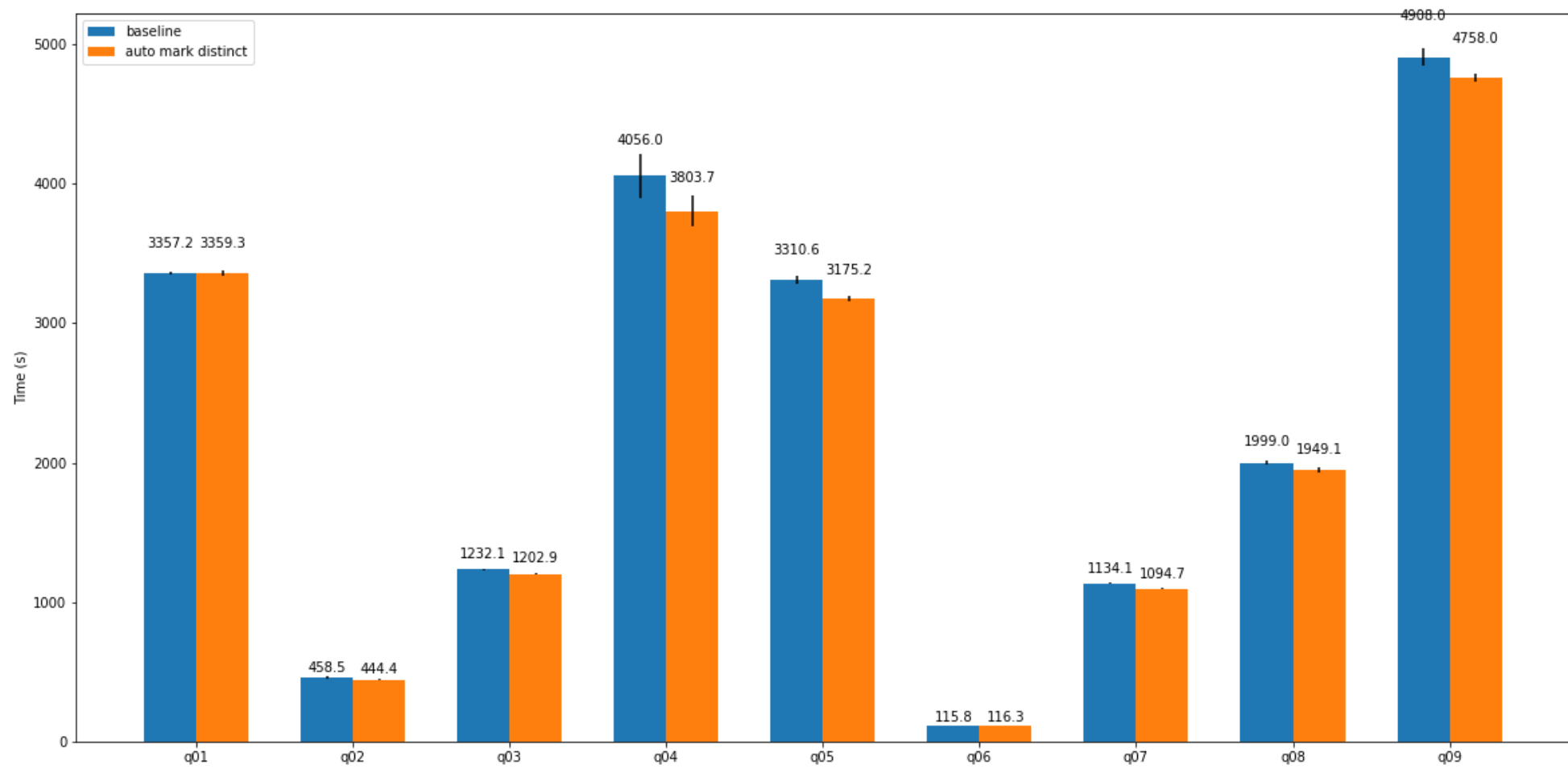
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
57	presto/tpcds/q58	4.86	0.22	5.23	0.65	7.60	0.37	4.63	12.37	0.21592
85	presto/tpcds/q86	2.06	0.25	2.58	0.92	25.15	0.52	12.05	35.60	0.21157
55	presto/tpcds/q56	1.97	0.44	2.50	1.37	26.99	0.53	22.38	54.85	0.38748
29	presto/tpcds/q30	1.65	0.10	2.31	1.16	40.04	0.66	6.15	50.40	0.19633
32	presto/tpcds/q33	1.68	0.39	2.34	1.52	39.48	0.66	23.24	65.10	0.32648
42	presto/tpcds/q43	4.45	0.76	5.14	2.01	15.65	0.70	17.15	38.99	0.44538
51	presto/tpcds/q52	1.52	0.39	2.29	1.53	50.53	0.77	25.36	66.70	0.25962
95	presto/tpcds/q96	3.94	1.11	4.73	1.04	20.12	0.79	28.21	22.06	0.23166
28	presto/tpcds/q29	5.58	0.64	6.39	1.78	14.46	0.81	11.49	27.88	0.32101
25	presto/tpcds/q26	2.36	0.46	3.20	1.70	35.37	0.84	19.58	53.01	0.27114
96	presto/tpcds/q97	18.14	0.88	19.11	2.08	5.34	0.97	4.88	10.87	0.31807
31	presto/tpcds/q32	1.31	0.46	2.40	1.82	83.83	1.09	35.42	75.81	0.18377
63	presto/tpcds/q64	78.84	1.11	79.95	5.90	1.41	1.11	1.41	7.38	0.66014
17	presto/tpcds/q18	2.83	0.53	3.95	2.04	39.82	1.13	18.76	51.52	0.21938
89	presto/tpcds/q90	2.70	0.68	3.86	1.88	42.71	1.15	25.01	48.72	0.18716
48	presto/tpcds/q49	8.11	1.22	9.30	3.26	14.70	1.19	14.99	34.99	0.42026
43	presto/tpcds/q44	10.23	1.89	11.43	1.76	11.79	1.21	18.47	15.36	0.27888
62	presto/tpcds/q63	2.78	0.08	4.31	1.56	55.30	1.53	2.72	36.15	0.03668
78	presto/tpcds/q79	3.47	0.43	5.06	2.07	45.76	1.59	12.39	41.01	0.09621
49	presto/tpcds/q50	4.57	0.13	6.35	1.86	38.81	1.77	2.90	29.31	0.04200
36	presto/tpcds/q37	2.48	0.68	4.59	1.35	85.10	2.11	27.51	29.48	0.00664
24	presto/tpcds/q25	4.35	0.33	6.83	2.55	57.24	2.49	7.67	37.35	0.03948

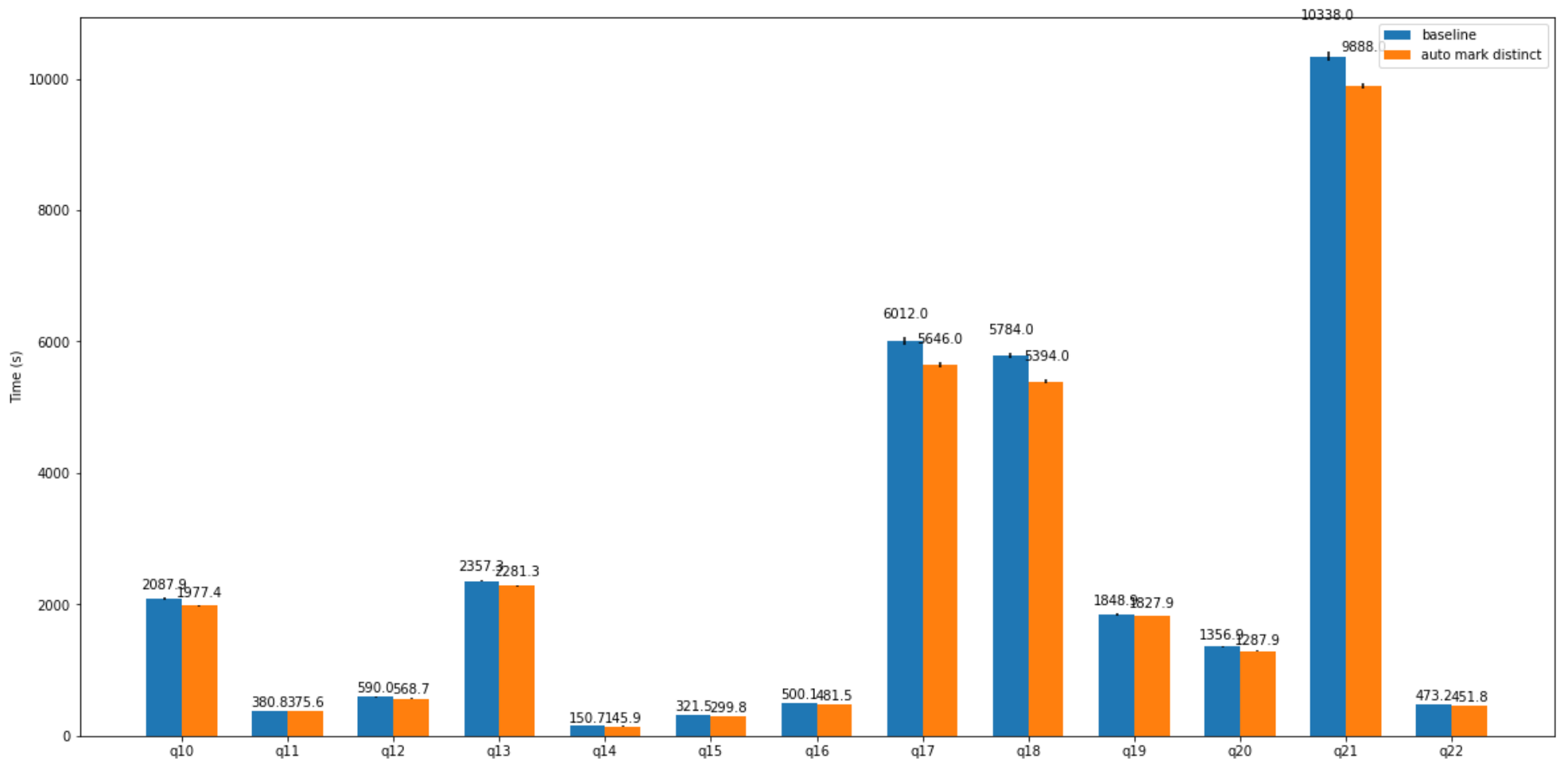
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TPC-H Comparison (CPU)





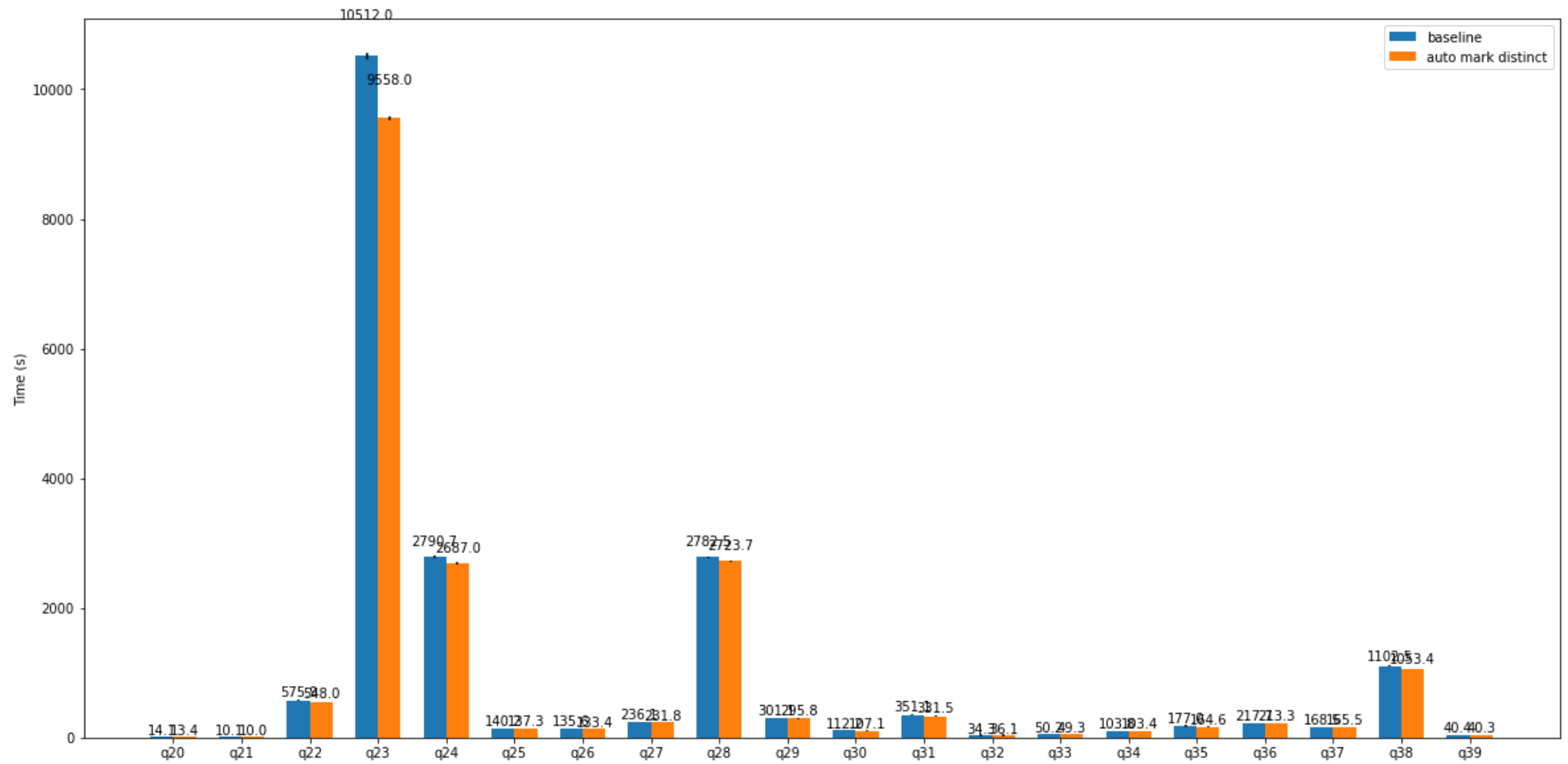
query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
14 presto/tpch/q15	321.50	5.71	299.80	0.49	-6.75	-21.70	1.78	0.16	0.00000
17 presto/tpch/q18	5784.00	37.18	5394.00	27.10	-6.74	-390.00	0.64	0.50	0.00000
3 presto/tpch/q04	4056.00	155.54	3803.70	109.08	-6.22	-252.30	3.83	2.87	0.00867
16 presto/tpch/q17	6012.00	60.24	5646.00	42.09	-6.09	-366.00	1.00	0.75	0.00000
9 presto/tpch/q10	2087.90	15.99	1977.40	15.29	-5.29	-110.50	0.77	0.77	0.00000
19 presto/tpch/q20	1356.90	7.33	1287.90	5.31	-5.09	-69.00	0.54	0.41	0.00000
21 presto/tpch/q22	473.20	1.55	451.80	1.37	-4.52	-21.40	0.33	0.30	0.00000
20 presto/tpch/q21	10338.00	73.48	9888.00	37.18	-4.35	-450.00	0.71	0.38	0.00000
4 presto/tpch/q05	3310.60	26.00	3175.20	22.34	-4.09	-135.40	0.79	0.70	0.00000
15 presto/tpch/q16	500.10	1.24	481.50	3.57	-3.72	-18.60	0.25	0.74	0.00000
11 presto/tpch/q12	590.00	7.01	568.70	0.80	-3.61	-21.30	1.19	0.14	0.00002

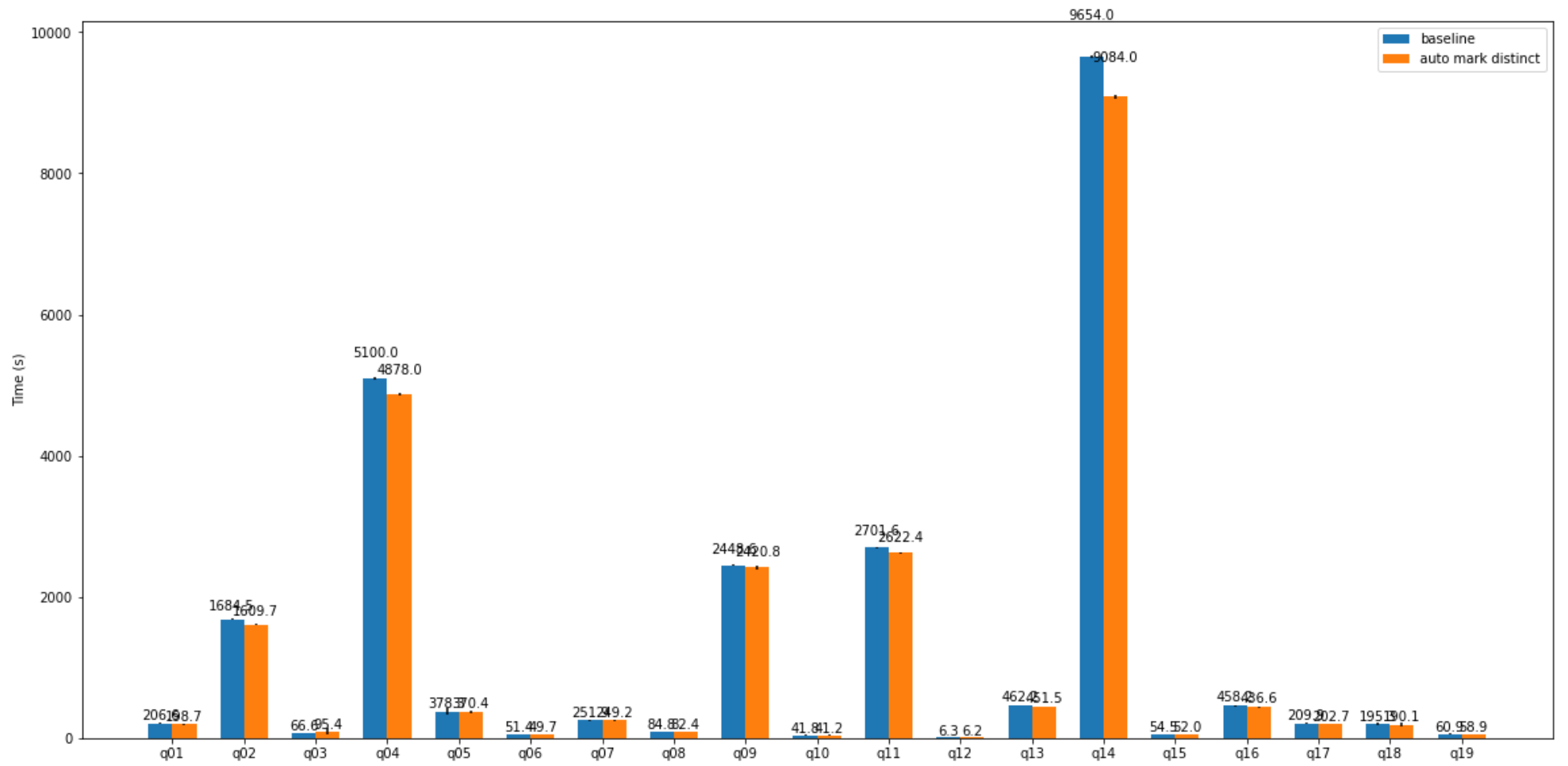
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
6	presto/tpch/q07	1134.10	4.42	1094.70	3.99	-3.47	-39.40	0.39	0.36	0.00000
12	presto/tpch/q13	2357.30	5.44	2281.30	7.27	-3.22	-76.00	0.23	0.32	0.00000
13	presto/tpch/q14	150.70	2.47	145.90	1.99	-3.19	-4.80	1.64	1.36	0.00406
1	presto/tpch/q02	458.50	7.37	444.40	7.28	-3.08	-14.10	1.61	1.64	0.00756
8	presto/tpch/q09	4908.00	63.04	4758.00	27.10	-3.06	-150.00	1.28	0.57	0.00032
7	presto/tpch/q08	1999.00	12.49	1949.10	19.71	-2.50	-49.90	0.62	1.01	0.00038
2	presto/tpch/q03	1232.10	4.20	1202.90	6.24	-2.37	-29.20	0.34	0.52	0.00000
10	presto/tpch/q11	380.80	2.42	375.60	1.70	-1.37	-5.20	0.64	0.45	0.00154
18	presto/tpch/q19	1848.90	15.67	1827.90	8.00	-1.14	-21.00	0.85	0.44	0.01522
0	presto/tpch/q01	3357.20	9.93	3359.30	16.13	0.06	2.10	0.30	0.48	0.79150
5	presto/tpch/q06	115.80	0.38	116.30	0.45	0.43	0.50	0.33	0.39	0.06462

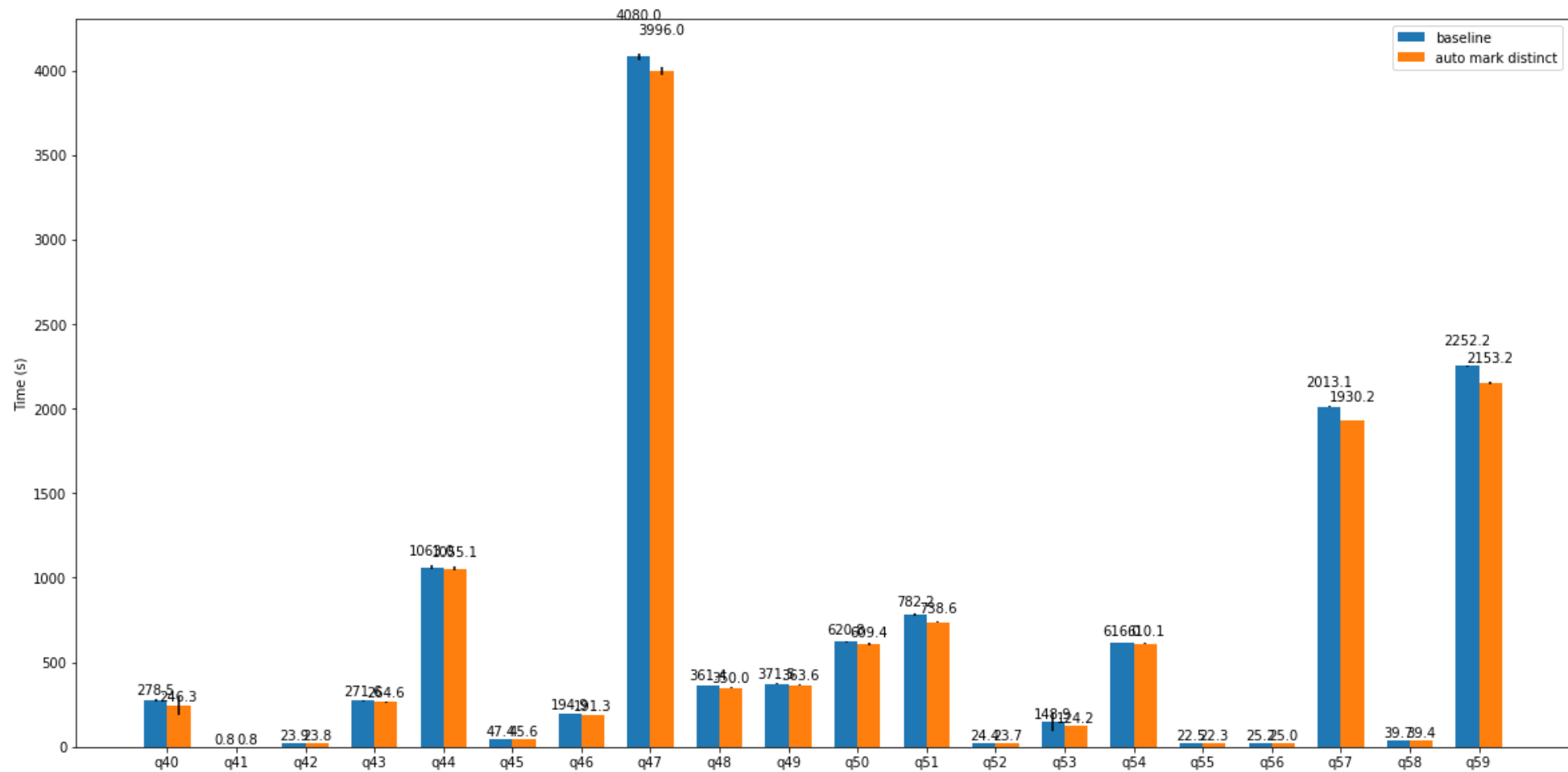
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std 2
min -7
25% -5
50% -4
75% -3
max 0
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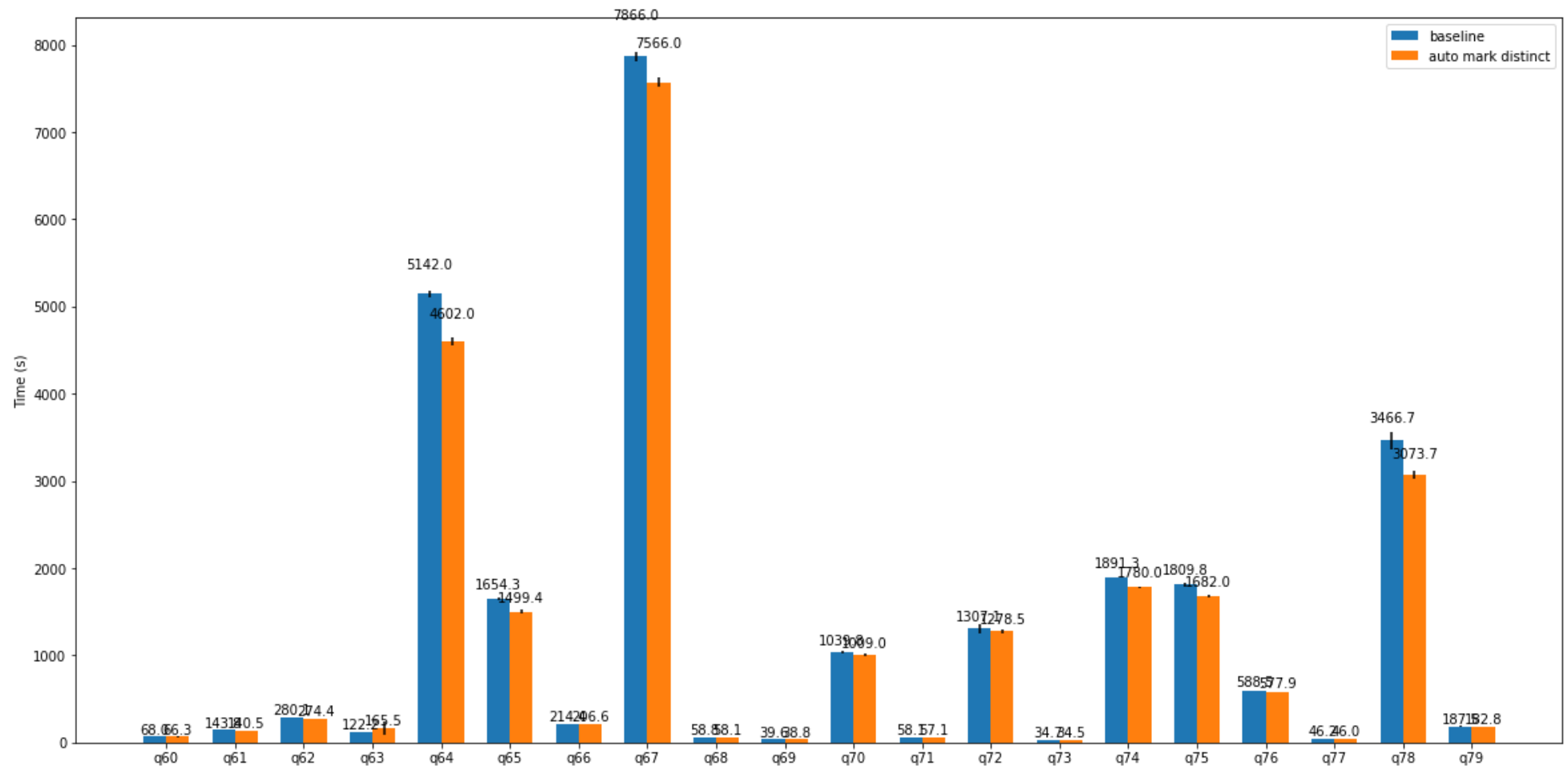
Name: % change, dtype: float64

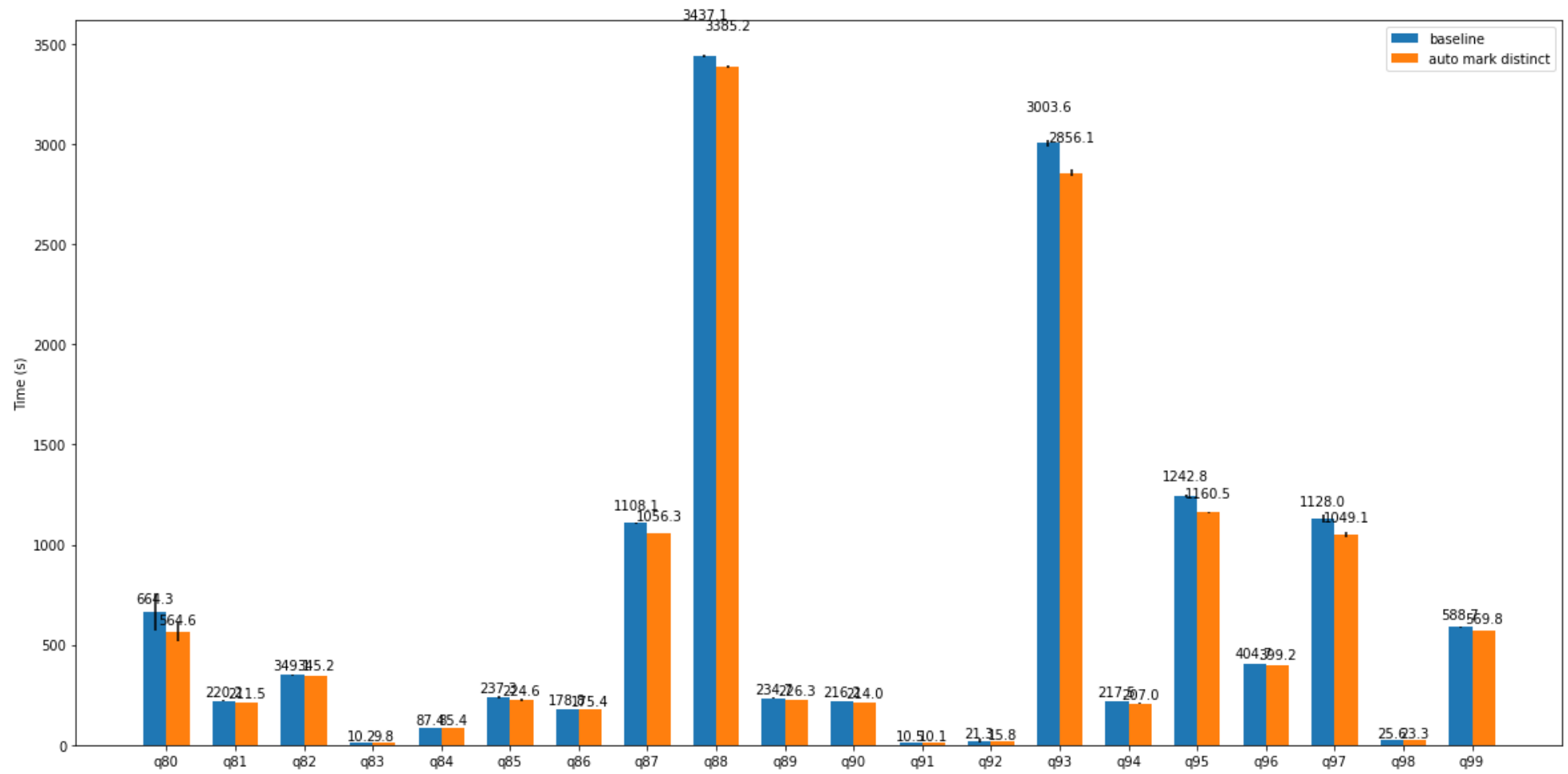
TPC-DS Comparison (CPU)

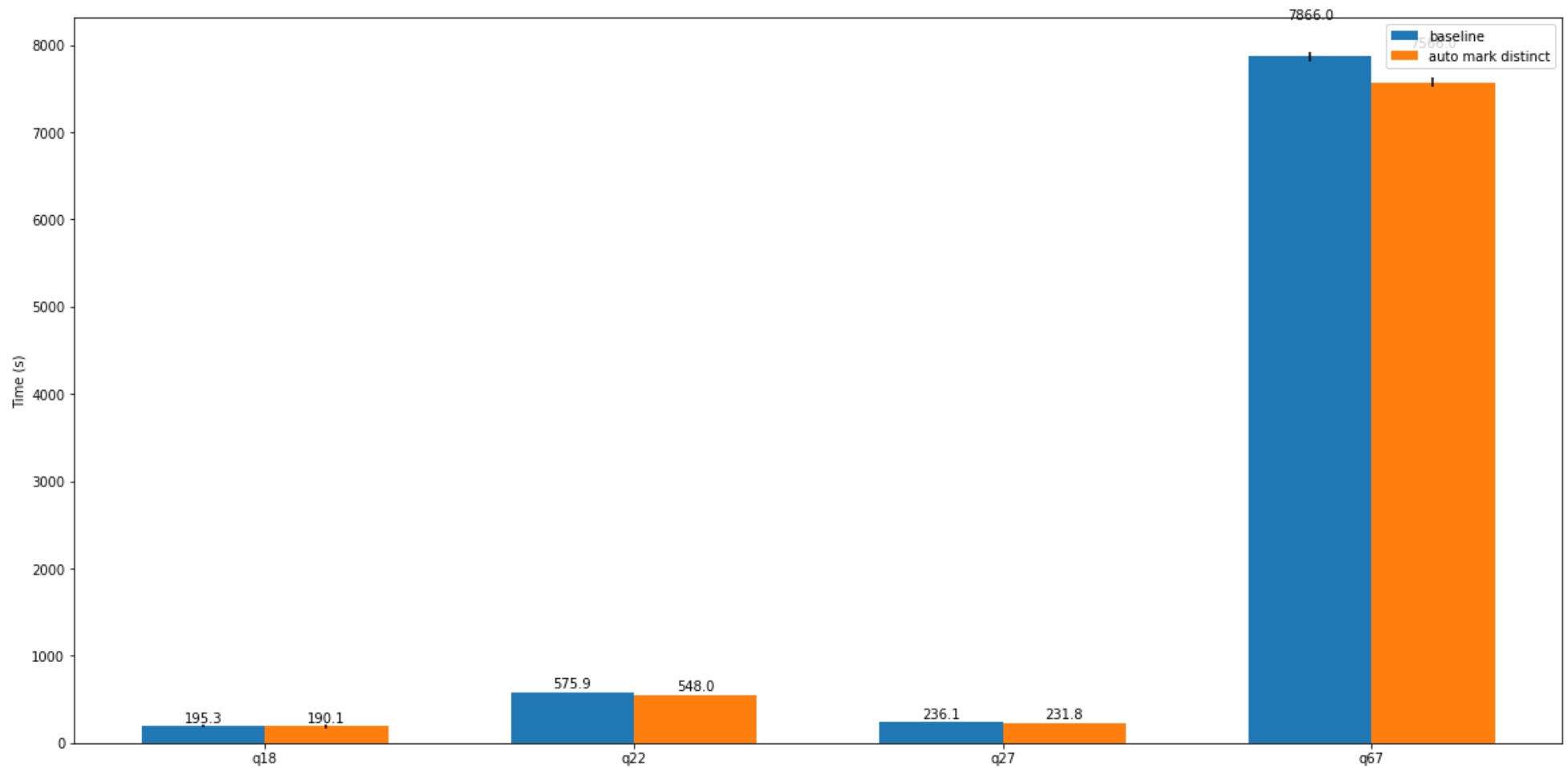












	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
91	presto/tpcds/q92	21.28	11.77	15.79	0.21	-25.80	-5.49	55.31	1.31	0.27984
52	presto/tpcds/q53	148.90	57.86	124.20	0.93	-16.59	-24.70	38.86	0.75	0.32039
79	presto/tpcds/q80	664.30	92.48	564.60	45.03	-15.01	-99.70	13.92	7.98	0.03900
39	presto/tpcds/q40	278.50	8.22	246.30	55.57	-11.56	-32.20	2.95	22.56	0.19058
77	presto/tpcds/q78	3466.70	99.57	3073.70	45.92	-11.34	-393.00	2.87	1.49	0.00001
63	presto/tpcds/q64	5142.00	35.39	4602.00	42.09	-10.50	-540.00	0.69	0.91	0.00000
64	presto/tpcds/q65	1654.30	14.00	1499.40	25.20	-9.36	-154.90	0.85	1.68	0.00000
22	presto/tpcds/q23	10512.00	45.54	9558.00	30.12	-9.08	-954.00	0.43	0.32	0.00000
97	presto/tpcds/q98	25.58	2.74	23.31	0.13	-8.88	-2.27	10.70	0.55	0.06969
74	presto/tpcds/q75	1809.80	24.48	1682.00	12.79	-7.06	-127.80	1.35	0.76	0.00000
34	presto/tpcds/q35	177.00	17.75	164.60	14.19	-7.01	-12.40	10.03	8.62	0.21088

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
96	presto/tpcds/q97	1128.00	18.54	1049.10	15.25	-6.99	-78.90	1.64	1.45	0.00001
94	presto/tpcds/q95	1242.80	7.00	1160.50	3.51	-6.62	-82.30	0.56	0.30	0.00000
13	presto/tpcds/q14	9654.00	14.70	9084.00	29.39	-5.90	-570.00	0.15	0.32	0.00000
73	presto/tpcds/q74	1891.30	2.80	1780.00	9.54	-5.88	-111.30	0.15	0.54	0.00000
30	presto/tpcds/q31	351.10	5.25	331.50	2.54	-5.58	-19.60	1.50	0.77	0.00001
50	presto/tpcds/q51	782.20	7.55	738.60	4.07	-5.57	-43.60	0.97	0.55	0.00000
84	presto/tpcds/q85	237.30	5.66	224.60	6.41	-5.35	-12.70	2.39	2.86	0.00457
19	presto/tpcds/q20	14.11	0.10	13.41	0.03	-4.96	-0.70	0.69	0.24	0.00000
92	presto/tpcds/q93	3003.60	17.05	2856.10	14.39	-4.91	-147.50	0.57	0.50	0.00000
21	presto/tpcds/q22	575.90	3.63	548.00	1.24	-4.84	-27.90	0.63	0.23	0.00000
93	presto/tpcds/q94	217.50	1.81	207.00	1.37	-4.83	-10.50	0.83	0.66	0.00000
15	presto/tpcds/q16	458.20	4.75	436.60	1.73	-4.71	-21.60	1.04	0.40	0.00000
86	presto/tpcds/q87	1108.10	3.02	1056.30	1.55	-4.67	-51.80	0.27	0.15	0.00000
29	presto/tpcds/q30	112.20	1.56	107.10	1.18	-4.55	-5.10	1.39	1.11	0.00008
14	presto/tpcds/q15	54.45	0.43	51.98	0.13	-4.53	-2.47	0.78	0.25	0.00000
37	presto/tpcds/q38	1102.50	8.08	1053.40	3.59	-4.45	-49.10	0.73	0.34	0.00000
1	presto/tpcds/q02	1684.50	7.88	1609.70	11.66	-4.44	-74.80	0.47	0.72	0.00000
58	presto/tpcds/q59	2252.20	6.16	2153.20	8.02	-4.40	-99.00	0.27	0.37	0.00000
3	presto/tpcds/q04	5100.00	18.59	4878.00	19.72	-4.35	-222.00	0.36	0.40	0.00000
56	presto/tpcds/q57	2013.10	5.40	1930.20	1.61	-4.12	-82.90	0.27	0.08	0.00000
82	presto/tpcds/q83	10.24	0.51	9.84	0.27	-3.95	-0.40	4.96	2.76	0.11585
80	presto/tpcds/q81	220.20	1.97	211.50	1.93	-3.95	-8.70	0.90	0.91	0.00002
0	presto/tpcds/q01	206.60	13.12	198.70	9.76	-3.82	-7.90	6.35	4.91	0.26405
66	presto/tpcds/q67	7866.00	49.62	7566.00	52.99	-3.81	-300.00	0.63	0.70	0.00000
44	presto/tpcds/q45	47.38	0.73	45.60	0.78	-3.75	-1.78	1.54	1.72	0.00226
23	presto/tpcds/q24	2790.70	11.50	2687.00	14.36	-3.72	-103.70	0.41	0.53	0.00000
90	presto/tpcds/q91	10.51	0.50	10.12	0.32	-3.65	-0.38	4.74	3.18	0.14418
65	presto/tpcds/q66	214.40	0.49	206.60	0.98	-3.64	-7.80	0.23	0.47	0.00000
88	presto/tpcds/q89	234.70	0.59	226.30	0.96	-3.58	-8.40	0.25	0.42	0.00000
16	presto/tpcds/q17	209.90	2.59	202.70	2.53	-3.43	-7.20	1.23	1.25	0.00065
18	presto/tpcds/q19	60.91	1.40	58.85	0.93	-3.38	-2.06	2.29	1.58	0.01328
5	presto/tpcds/q06	51.36	2.39	49.71	1.97	-3.21	-1.65	4.65	3.97	0.22118
98	presto/tpcds/q99	588.70	1.84	569.80	0.73	-3.21	-18.90	0.31	0.13	0.00000

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
47	presto/tpcds/q48	361.40	2.23	350.00	1.35	-3.15	-11.40	0.62	0.39	0.00000
69	presto/tpcds/q70	1039.80	18.38	1009.00	18.85	-2.96	-30.80	1.77	1.87	0.01680
10	presto/tpcds/q11	2701.60	8.02	2622.40	12.13	-2.93	-79.20	0.30	0.46	0.00000
51	presto/tpcds/q52	24.39	0.25	23.69	0.45	-2.86	-0.70	1.04	1.89	0.00769
7	presto/tpcds/q08	84.80	2.00	82.40	0.62	-2.83	-2.40	2.35	0.75	0.01839
17	presto/tpcds/q18	195.30	21.32	190.10	21.02	-2.66	-5.20	10.92	11.06	0.67954
42	presto/tpcds/q43	271.60	1.92	264.60	1.65	-2.58	-7.00	0.71	0.63	0.00005
78	presto/tpcds/q79	187.50	1.46	182.80	1.05	-2.51	-4.70	0.78	0.57	0.00008
59	presto/tpcds/q60	68.00	1.05	66.30	0.91	-2.50	-1.70	1.55	1.37	0.01344
12	presto/tpcds/q13	462.20	3.10	451.50	1.73	-2.32	-10.70	0.67	0.38	0.00002
60	presto/tpcds/q61	143.80	0.62	140.50	0.45	-2.29	-3.30	0.43	0.32	0.00000
83	presto/tpcds/q84	87.40	0.82	85.40	1.12	-2.29	-2.00	0.94	1.31	0.00540
68	presto/tpcds/q69	39.63	0.46	38.76	0.81	-2.21	-0.88	1.15	2.08	0.04320
71	presto/tpcds/q72	1307.10	51.37	1278.50	20.17	-2.19	-28.60	3.93	1.58	0.23306
48	presto/tpcds/q49	371.50	4.61	363.60	4.07	-2.13	-7.90	1.24	1.12	0.01037
27	presto/tpcds/q28	2782.50	10.22	2723.70	6.03	-2.11	-58.80	0.37	0.22	0.00000
4	presto/tpcds/q05	378.30	48.72	370.40	19.18	-2.09	-7.90	12.88	5.18	0.71938
24	presto/tpcds/q25	140.20	5.66	137.30	5.71	-2.07	-2.90	4.04	4.16	0.39779
46	presto/tpcds/q47	4080.00	18.59	3996.00	22.77	-2.06	-84.00	0.46	0.57	0.00004
61	presto/tpcds/q62	280.10	0.24	274.40	1.30	-2.03	-5.70	0.09	0.47	0.00000
35	presto/tpcds/q36	217.70	0.88	213.30	1.24	-2.02	-4.40	0.41	0.58	0.00003
85	presto/tpcds/q86	178.80	0.54	175.40	0.31	-1.90	-3.40	0.30	0.18	0.00000
45	presto/tpcds/q46	194.90	1.44	191.30	0.88	-1.85	-3.60	0.74	0.46	0.00039
49	presto/tpcds/q50	620.80	1.96	609.40	5.40	-1.84	-11.40	0.32	0.89	0.00066
26	presto/tpcds/q27	236.10	1.12	231.80	0.90	-1.82	-4.30	0.48	0.39	0.00003
75	presto/tpcds/q76	588.50	2.02	577.90	5.15	-1.80	-10.60	0.34	0.89	0.00085
36	presto/tpcds/q37	168.50	0.45	165.50	0.96	-1.78	-3.00	0.27	0.58	0.00004
28	presto/tpcds/q29	301.10	1.84	295.80	12.06	-1.76	-5.30	0.61	4.08	0.31225
70	presto/tpcds/q71	58.08	0.99	57.08	2.51	-1.72	-1.00	1.71	4.39	0.38475
32	presto/tpcds/q33	50.19	0.43	49.34	0.11	-1.71	-0.86	0.85	0.22	0.00077
25	presto/tpcds/q26	135.60	0.76	133.40	1.12	-1.62	-2.20	0.56	0.84	0.00256
87	presto/tpcds/q88	3437.10	7.61	3385.20	9.41	-1.51	-51.90	0.22	0.28	0.00000
9	presto/tpcds/q10	41.80	1.89	41.22	1.90	-1.39	-0.58	4.51	4.62	0.60763

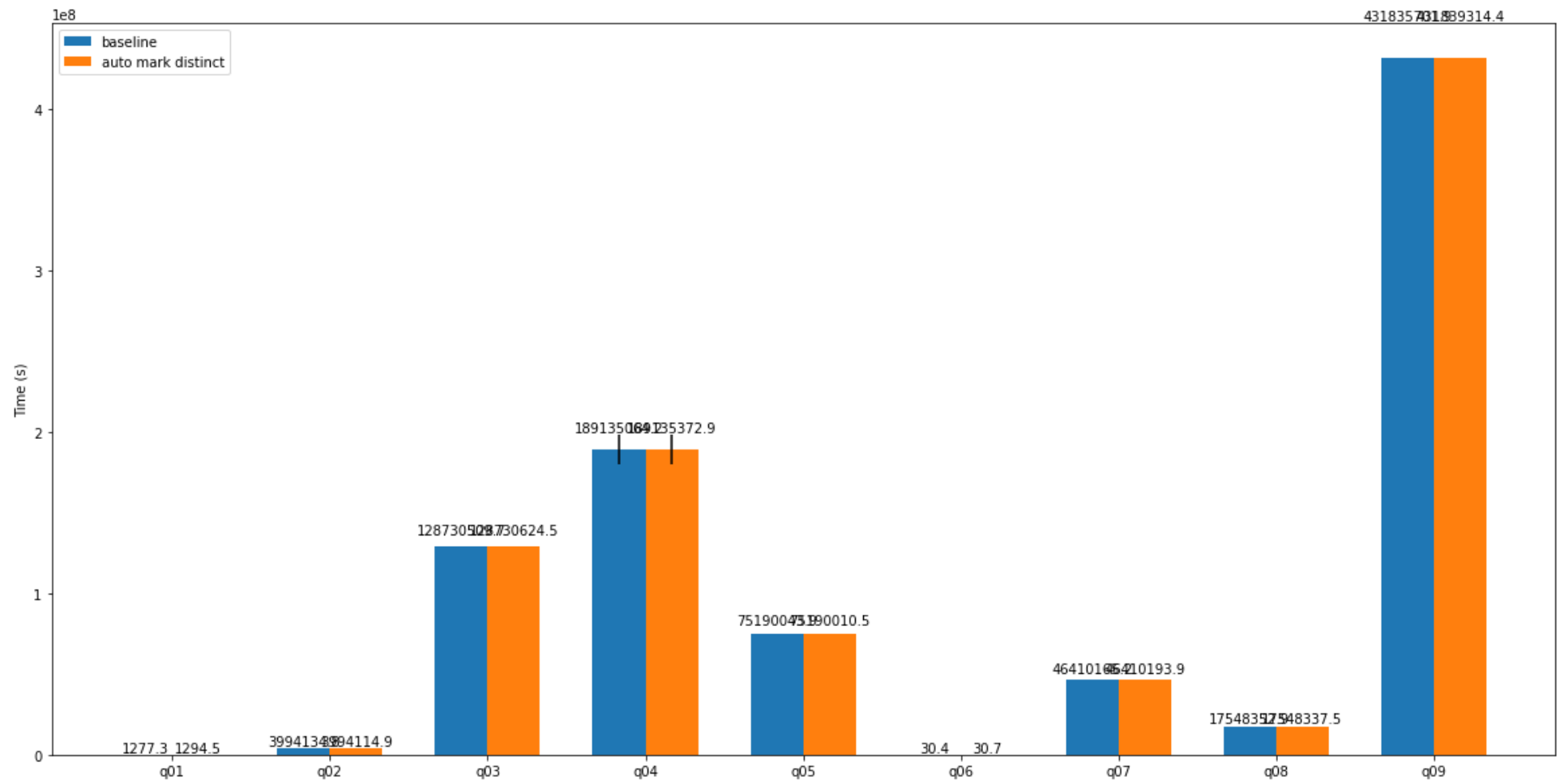
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
95	presto/tpcds/q96	404.70	0.50	399.20	0.82	-1.36	-5.50	0.12	0.21	0.00000
11	presto/tpcds/q12	6.33	0.02	6.25	0.07	-1.29	-0.08	0.29	1.07	0.01588
67	presto/tpcds/q68	58.81	0.43	58.14	0.38	-1.14	-0.67	0.73	0.65	0.01631
8	presto/tpcds/q09	2448.60	4.89	2420.80	25.08	-1.14	-27.80	0.20	1.04	0.02370
81	presto/tpcds/q82	349.10	1.16	345.20	0.49	-1.12	-3.90	0.33	0.14	0.00002
6	presto/tpcds/q07	251.90	4.95	249.20	6.85	-1.07	-2.70	1.97	2.75	0.45206
89	presto/tpcds/q90	216.20	0.82	214.00	0.90	-1.02	-2.20	0.38	0.42	0.00130
53	presto/tpcds/q54	616.00	3.34	610.10	2.50	-0.96	-5.90	0.54	0.41	0.00611
54	presto/tpcds/q55	22.45	0.08	22.27	0.06	-0.83	-0.19	0.34	0.29	0.00107
40	presto/tpcds/q41	0.78	0.01	0.77	0.01	-0.77	-0.01	1.93	1.08	0.41092
57	presto/tpcds/q58	39.75	0.44	39.44	0.59	-0.77	-0.31	1.10	1.50	0.33063
43	presto/tpcds/q44	1063.00	9.41	1055.10	8.51	-0.74	-7.90	0.89	0.81	0.15812
55	presto/tpcds/q56	25.19	0.41	25.01	0.37	-0.74	-0.19	1.61	1.47	0.42381
20	presto/tpcds/q21	10.05	0.19	9.98	0.08	-0.73	-0.07	1.87	0.81	0.40201
41	presto/tpcds/q42	23.94	0.64	23.77	0.53	-0.70	-0.17	2.68	2.24	0.63511
72	presto/tpcds/q73	34.73	0.17	34.50	0.21	-0.67	-0.23	0.48	0.60	0.05795
76	presto/tpcds/q77	46.22	0.27	45.95	0.41	-0.57	-0.26	0.59	0.89	0.21779
33	presto/tpcds/q34	103.80	0.54	103.40	0.49	-0.39	-0.40	0.52	0.47	0.20728
38	presto/tpcds/q39	40.38	0.35	40.28	0.47	-0.24	-0.10	0.86	1.17	0.69475
31	presto/tpcds/q32	34.29	16.42	36.15	21.97	5.40	1.85	47.89	60.79	0.87186
62	presto/tpcds/q63	122.20	1.05	165.50	69.35	35.43	43.30	0.86	41.90	0.15719
2	presto/tpcds/q03	66.60	0.54	95.40	46.48	43.24	28.80	0.81	48.72	0.16008

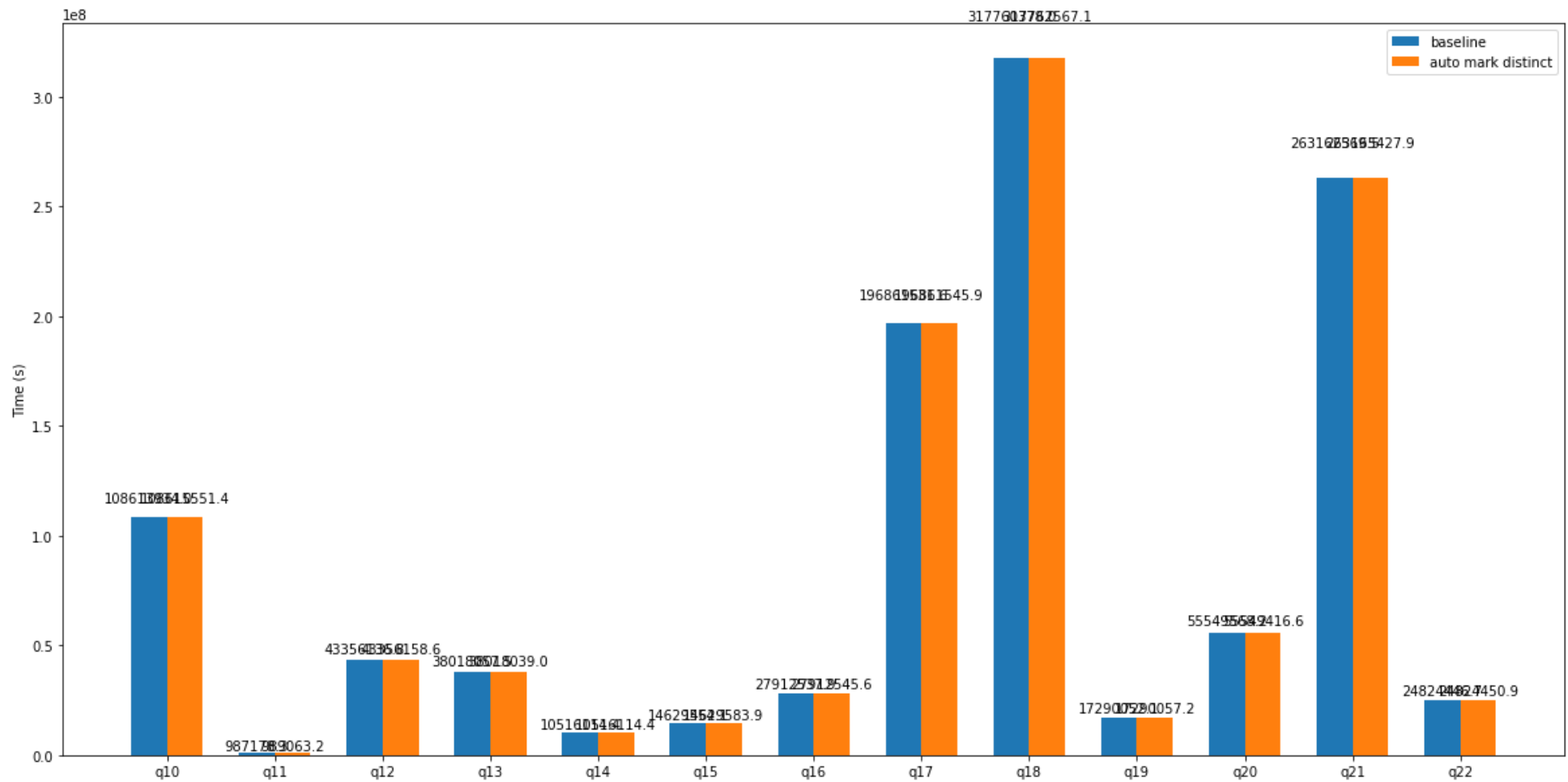
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75%      -2
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Name: % change, dtype: float64

```

TPC-H Comparison (Network)





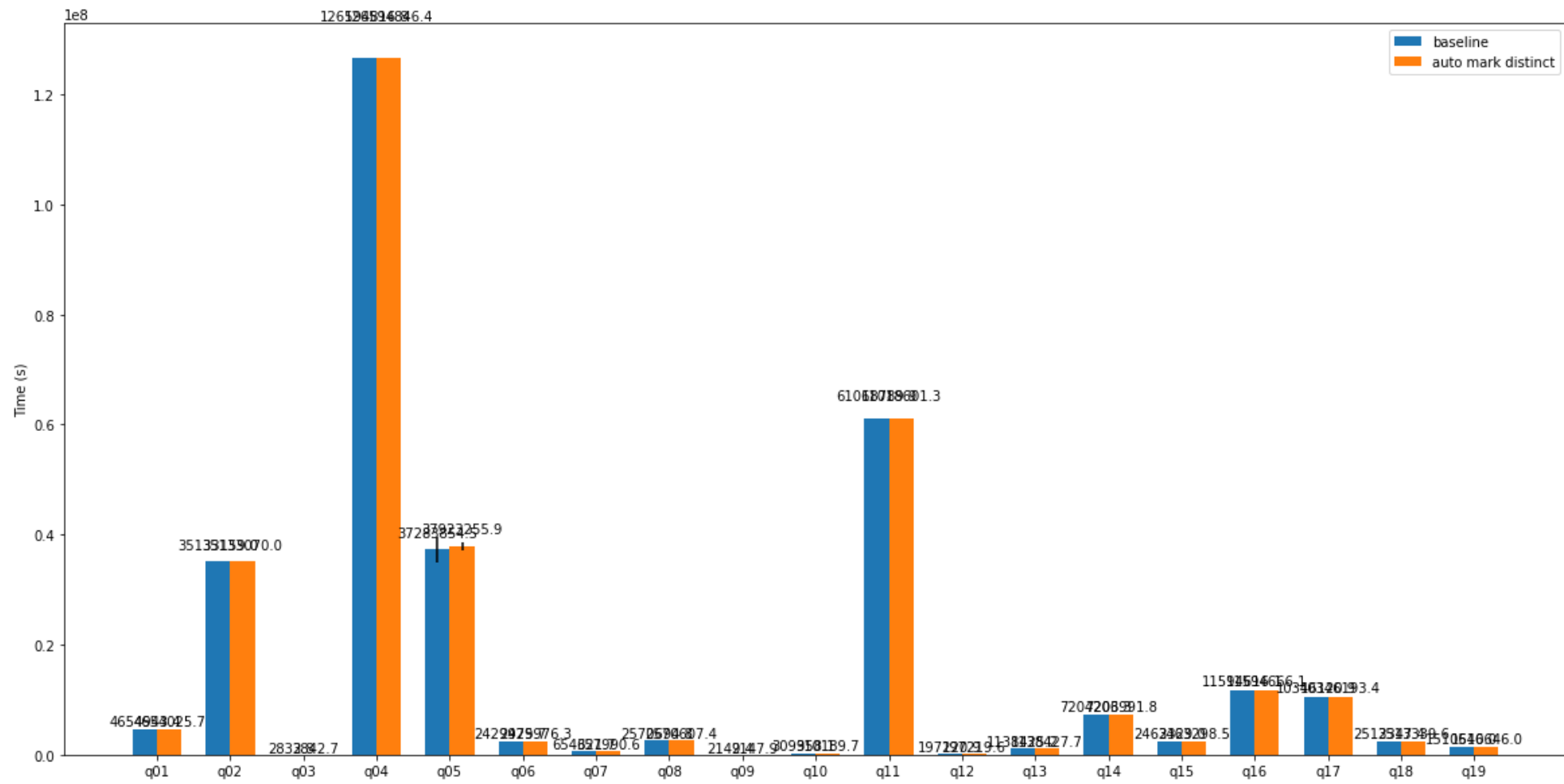
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
1	presto/tpch/q02	3994134.83	26.29	3994114.90	29.64	-0.00	-19.93	0.00	0.00	0.24614
19	presto/tpch/q20	55549568.24	200.65	55549416.59	301.38	-0.00	-151.65	0.00	0.00	0.32908
7	presto/tpch/q08	17548352.92	143.71	17548337.50	100.65	-0.00	-15.42	0.00	0.00	0.83391
12	presto/tpch/q13	38018057.49	6.76	38018039.04	13.48	-0.00	-18.45	0.00	0.00	0.01341
4	presto/tpch/q05	75190043.91	37.45	75190010.49	13.83	-0.00	-33.42	0.00	0.00	0.06739
13	presto/tpch/q14	10516114.41	0.00	10516114.41	0.00	0.00	0.00	0.00	0.00	nan
16	presto/tpch/q17	196861531.62	11.05	196861545.91	27.89	0.00	14.28	0.00	0.00	0.27059
21	presto/tpch/q22	24824446.69	11.63	24824450.90	8.58	0.00	4.21	0.00	0.00	0.49209
15	presto/tpch/q16	27912537.95	8.06	27912545.63	4.29	0.00	7.68	0.00	0.00	0.06631
18	presto/tpch/q19	17290052.13	18.73	17290057.23	5.12	0.00	5.10	0.00	0.00	0.53480
11	presto/tpch/q12	43356136.84	16.32	43356158.62	25.33	0.00	21.77	0.00	0.00	0.10716

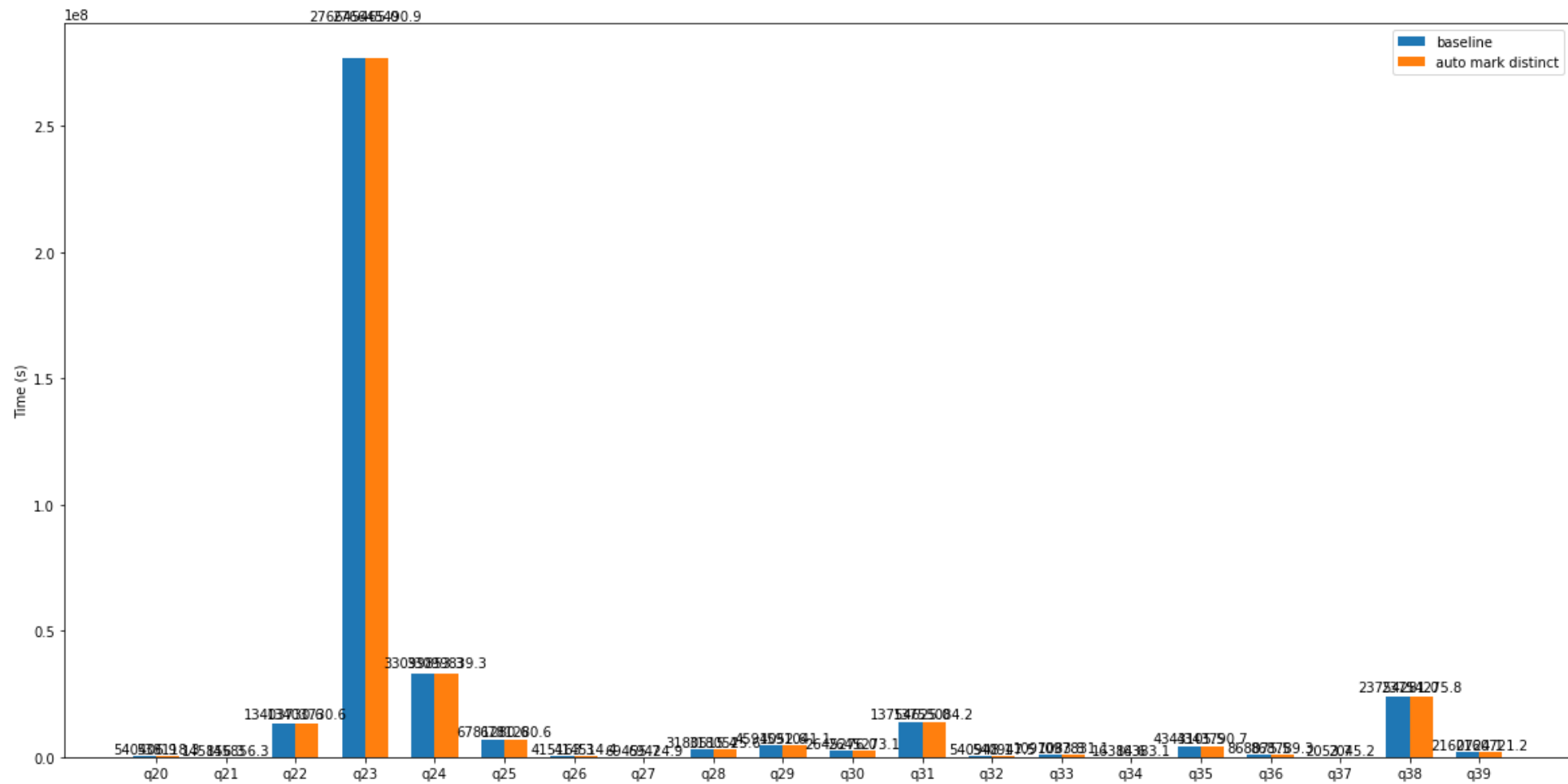
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
6	presto/tpch/q07	46410165.24	47.45	46410193.88	60.46	0.00	28.64	0.00	0.00	0.38283
2	presto/tpch/q03	128730509.67	216.48	128730624.55	277.06	0.00	114.88	0.00	0.00	0.44212
3	presto/tpch/q04	189135064.23	8988411.00	189135372.87	8988601.55	0.00	308.64	4.75	4.75	0.99995
14	presto/tpch/q15	14629554.08	145.56	14629583.92	69.71	0.00	29.84	0.00	0.00	0.66025
17	presto/tpch/q18	317760378.04	2850.71	317762567.05	2082.12	0.00	2189.01	0.00	0.00	0.15975
8	presto/tpch/q09	431835701.93	6695.23	431839314.42	4764.72	0.00	3612.48	0.00	0.00	0.30686
20	presto/tpch/q21	263162569.53	2986.56	263165427.94	2566.96	0.00	2858.40	0.00	0.00	0.10579
9	presto/tpch/q10	108613933.97	3484.54	108615551.39	1940.76	0.00	1617.42	0.00	0.00	0.34399
10	presto/tpch/q11	987178.35	11896.87	989063.17	12630.52	0.19	1884.82	1.21	1.28	0.79558
5	presto/tpch/q06	30.35	0.64	30.74	0.07	1.29	0.39	2.12	0.24	0.17018
0	presto/tpch/q01	1277.33	17.26	1294.51	22.70	1.34	17.17	1.35	1.75	0.17097

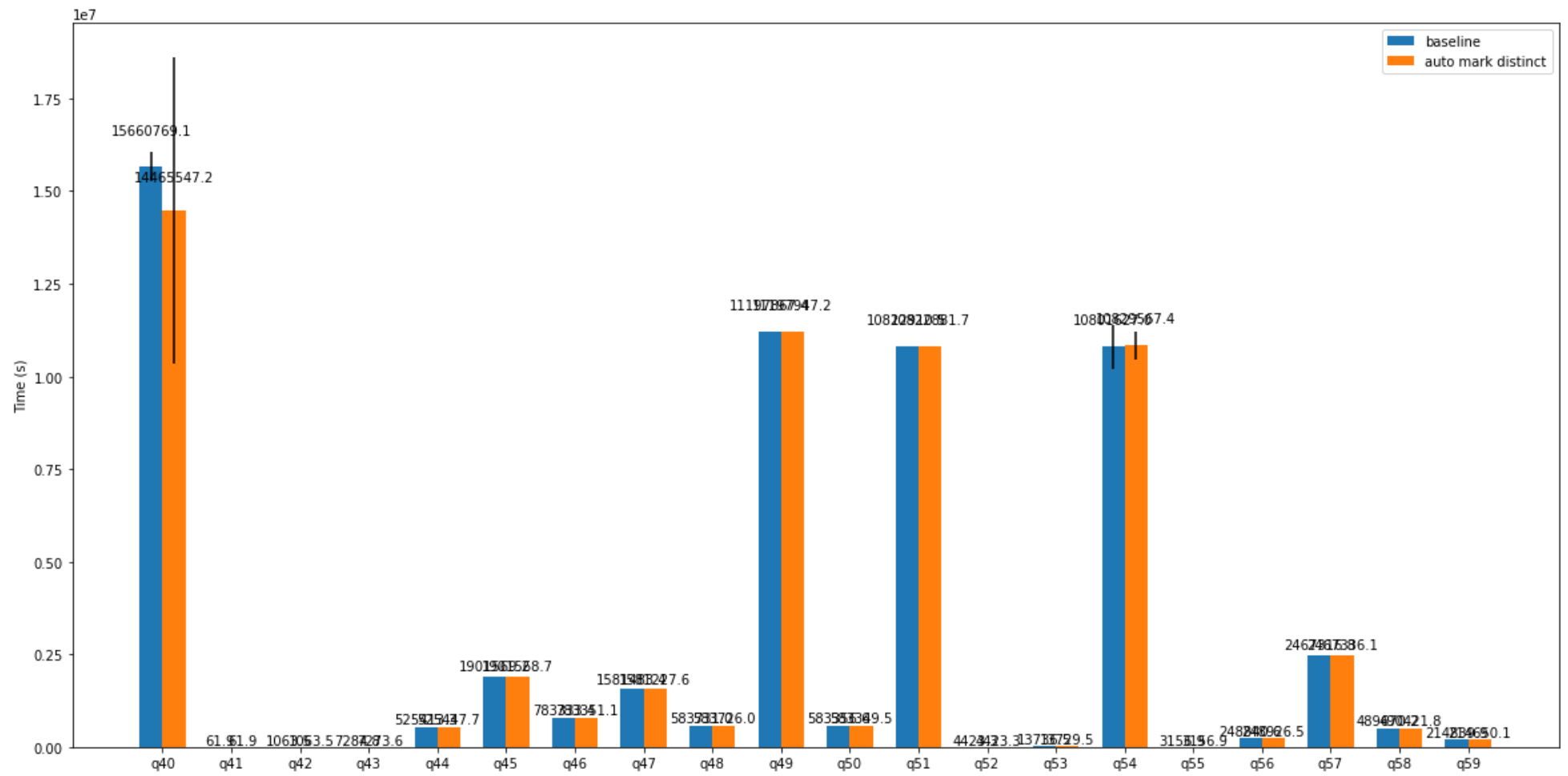
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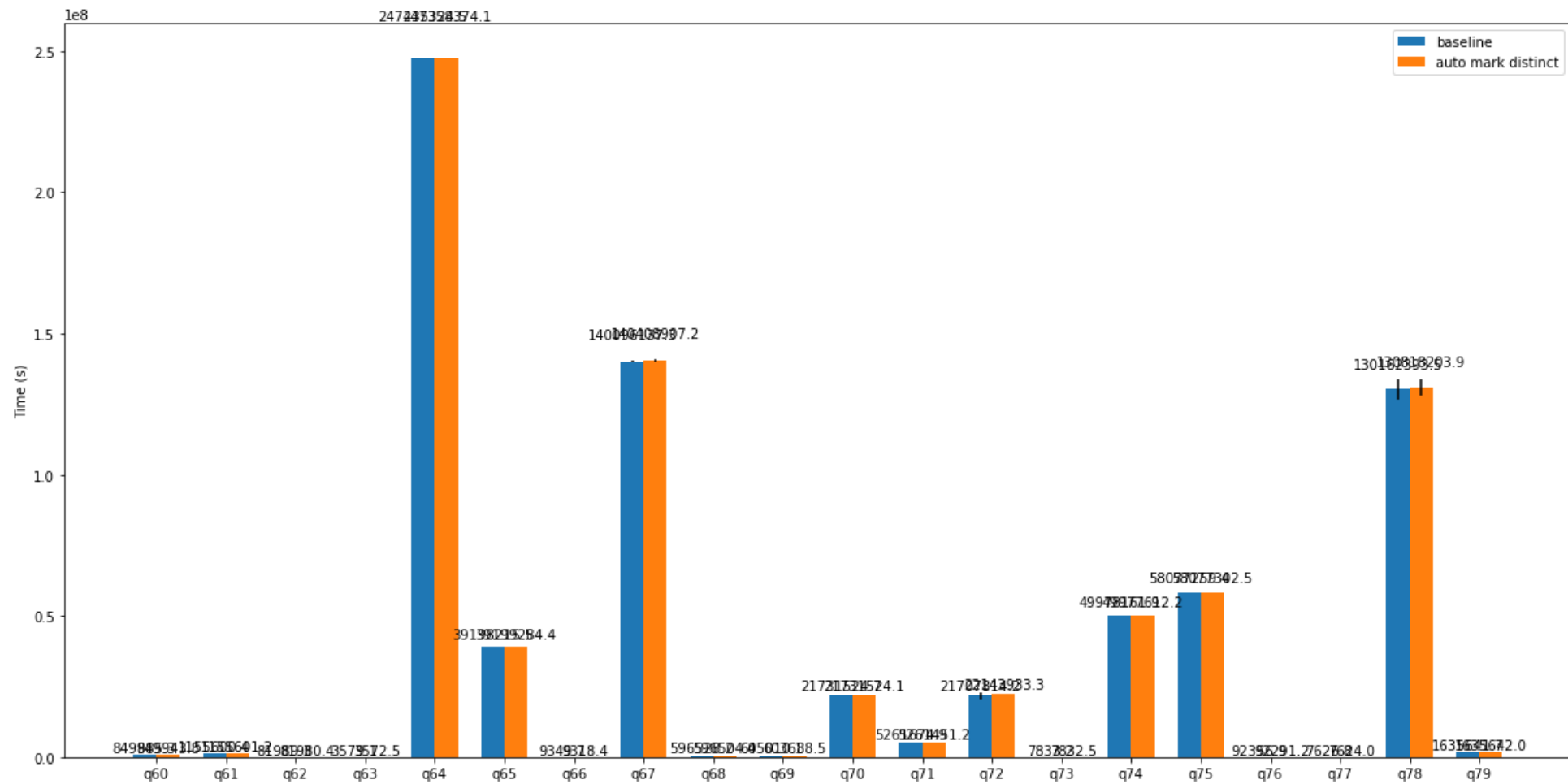
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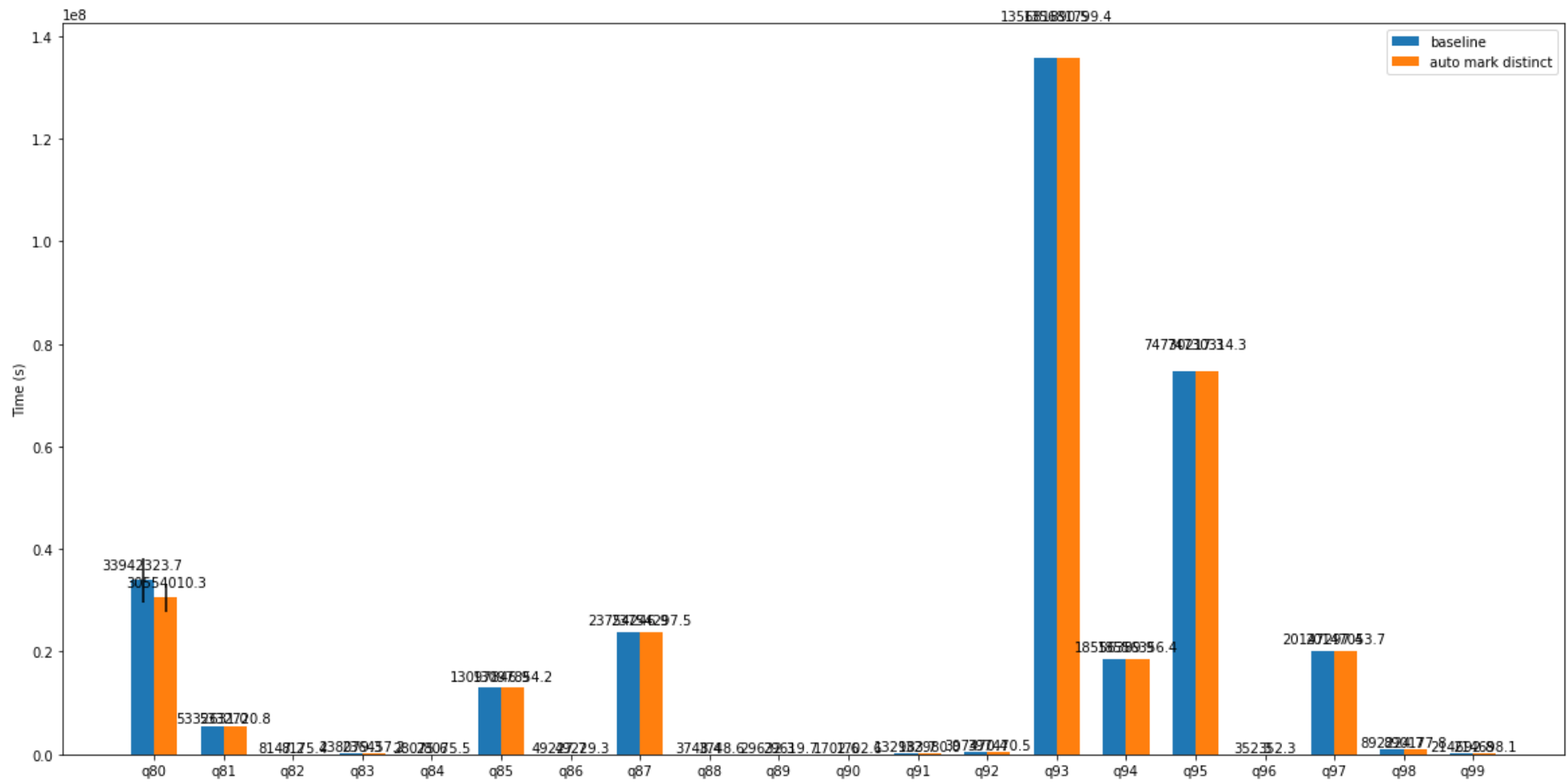
TPC-DS Comparison (Network)











	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
79	presto/tpcds/q80	33942323.66	4296395.21	30554010.26	2744151.29	-9.98	-3388313.39	12.66	8.98	0.13458
39	presto/tpcds/q40	15660769.15	411346.84	14465547.19	4138112.44	-7.63	-1195221.96	2.63	28.61	0.49748
82	presto/tpcds/q83	238079.30	5745.17	236457.22	7665.37	-0.68	-1622.08	2.41	3.24	0.68707
19	presto/tpcds/q20	540406.94	6404.73	538118.26	2033.91	-0.42	-2288.69	1.19	0.38	0.42362
36	presto/tpcds/q37	2053.66	25.36	2045.16	35.57	-0.41	-8.50	1.23	1.74	0.64381
65	presto/tpcds/q66	9349.74	59.58	9318.39	30.31	-0.34	-31.35	0.64	0.33	0.27738
97	presto/tpcds/q98	892224.74	5806.86	890177.81	5730.49	-0.23	-2046.93	0.65	0.64	0.55256
68	presto/tpcds/q69	605010.09	3474.52	603688.51	4852.90	-0.22	-1321.57	0.57	0.80	0.59944
62	presto/tpcds/q63	3579.14	15.08	3572.47	12.60	-0.19	-6.67	0.42	0.35	0.42507
25	presto/tpcds/q26	415163.34	1764.98	414514.44	3019.27	-0.16	-648.90	0.43	0.73	0.65919
42	presto/tpcds/q43	7284.81	24.35	7273.59	22.66	-0.15	-11.22	0.33	0.31	0.42788

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
58	presto/tpcds/q59	214839.91	446.01	214650.12	393.42	-0.09	-189.79	0.21	0.18	0.45252
75	presto/tpcds/q76	92356.91	186.05	92291.21	159.56	-0.07	-65.70	0.20	0.17	0.52624
8	presto/tpcds/q09	2149.44	7.26	2147.94	5.90	-0.07	-1.50	0.34	0.27	0.70271
52	presto/tpcds/q53	13736.49	11.89	13729.53	12.42	-0.05	-6.96	0.09	0.09	0.34483
26	presto/tpcds/q27	69455.75	13.91	69424.89	27.85	-0.04	-30.85	0.02	0.04	0.03561
88	presto/tpcds/q89	29632.33	12.99	29619.65	14.17	-0.04	-12.68	0.04	0.05	0.13739
76	presto/tpcds/q77	7626.81	5.05	7623.96	3.57	-0.04	-2.86	0.07	0.05	0.28424
63	presto/tpcds/q64	247435324.46	24772.82	247358374.11	28889.45	-0.03	-76950.35	0.01	0.01	0.00058
0	presto/tpcds/q01	4654943.42	2401.90	4654025.69	1402.29	-0.02	-917.74	0.05	0.03	0.43775
46	presto/tpcds/q47	1581483.35	684.55	1581227.59	62.72	-0.02	-255.77	0.04	0.00	0.38354
61	presto/tpcds/q62	81989.29	24.62	81980.43	18.67	-0.01	-8.86	0.03	0.02	0.49848
35	presto/tpcds/q36	868875.49	75.59	868789.28	63.55	-0.01	-86.21	0.01	0.01	0.05820
33	presto/tpcds/q34	16384.57	1.87	16383.11	6.78	-0.01	-1.46	0.01	0.04	0.62218
72	presto/tpcds/q73	7833.17	1.14	7832.48	0.96	-0.01	-0.69	0.01	0.01	0.28233
59	presto/tpcds/q60	849985.32	4248.30	849943.85	3192.97	-0.00	-41.47	0.50	0.38	0.98513
70	presto/tpcds/q71	5261674.92	435.06	5261451.18	277.46	-0.00	-223.74	0.01	0.01	0.31316
67	presto/tpcds/q68	596528.17	76.83	596504.37	49.65	-0.00	-23.79	0.01	0.01	0.53834
7	presto/tpcds/q08	2570694.76	605.48	2570607.37	634.94	-0.00	-87.39	0.02	0.02	0.81218
13	presto/tpcds/q14	7204206.30	517.21	7203991.79	224.21	-0.00	-214.51	0.01	0.00	0.37324
90	presto/tpcds/q91	132983.75	8.61	132979.99	13.30	-0.00	-3.75	0.01	0.01	0.57440
14	presto/tpcds/q15	2463328.97	60.08	2463298.45	57.59	-0.00	-30.52	0.00	0.00	0.39022
49	presto/tpcds/q50	583356.64	20.86	583349.50	30.81	-0.00	-7.14	0.00	0.01	0.64856
96	presto/tpcds/q97	20147297.37	466.86	20147053.72	142.03	-0.00	-243.65	0.00	0.00	0.24935
73	presto/tpcds/q74	49978161.92	1107.91	49977612.21	1195.54	-0.00	-549.71	0.00	0.00	0.42802
47	presto/tpcds/q48	583730.99	18.17	583726.03	5.12	-0.00	-4.95	0.00	0.00	0.53485
11	presto/tpcds/q12	197220.86	0.00	197219.60	3.08	-0.00	-1.26	0.00	0.00	0.34089
10	presto/tpcds/q11	61018789.87	324.46	61018601.31	151.98	-0.00	-188.55	0.00	0.00	0.22639
17	presto/tpcds/q18	2513347.36	43.75	2513339.63	26.86	-0.00	-7.73	0.00	0.00	0.71983
50	presto/tpcds/q51	10822910.49	193.62	10822881.72	238.02	-0.00	-28.78	0.00	0.00	0.82294
1	presto/tpcds/q02	35133158.98	260.94	35133070.04	240.25	-0.00	-88.93	0.00	0.00	0.55283
28	presto/tpcds/q29	4591052.59	11.18	4591041.05	33.34	-0.00	-11.54	0.00	0.00	0.44036
93	presto/tpcds/q94	18556389.89	80.14	18556356.43	99.48	-0.00	-33.46	0.00	0.00	0.53552
38	presto/tpcds/q39	2160724.09	3.35	2160721.17	2.60	-0.00	-2.93	0.00	0.00	0.12142

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
29	presto/tpcds/q30	2645276.03	79.46	2645273.11	57.92	-0.00	-2.93	0.00	0.00	0.94329
31	presto/tpcds/q32	540948.11	1.85	540947.52	1.75	-0.00	-0.59	0.00	0.00	0.58169
83	presto/tpcds/q84	28075.55	0.05	28075.53	0.06	-0.00	-0.02	0.00	0.00	0.54901
92	presto/tpcds/q93	135681890.46	80.68	135681799.37	74.38	-0.00	-91.10	0.00	0.00	0.06939
23	presto/tpcds/q24	33099853.34	152.80	33099839.32	166.05	-0.00	-14.02	0.00	0.00	0.88208
44	presto/tpcds/q45	1901569.15	13.49	1901568.68	19.29	-0.00	-0.47	0.00	0.00	0.96177
37	presto/tpcds/q38	23754281.02	178.21	23754275.81	95.49	-0.00	-5.22	0.00	0.00	0.95085
69	presto/tpcds/q70	21731524.68	20.88	21731524.11	17.39	-0.00	-0.58	0.00	0.00	0.95956
24	presto/tpcds/q25	6781280.64	0.00	6781280.64	0.00	0.00	0.00	0.00	0.00	nan
95	presto/tpcds/q96	352.30	0.02	352.30	0.02	0.00	0.00	0.01	0.01	1.00000
40	presto/tpcds/q41	61.90	0.00	61.90	0.00	0.00	0.00	0.00	0.00	nan
18	presto/tpcds/q19	1510646.05	0.00	1510646.05	0.00	0.00	0.00	0.00	0.00	nan
21	presto/tpcds/q22	13403730.60	0.00	13403730.60	0.00	0.00	0.00	0.00	0.00	nan
20	presto/tpcds/q21	145856.29	0.00	145856.29	0.00	0.00	0.00	0.00	0.00	nan
89	presto/tpcds/q90	1702.60	0.00	1702.60	0.00	0.00	0.00	0.00	0.00	nan
41	presto/tpcds/q42	1063.54	0.00	1063.54	0.00	0.00	0.00	0.00	0.00	nan
54	presto/tpcds/q55	3156.94	0.00	3156.94	0.00	0.00	0.00	0.00	0.00	nan
51	presto/tpcds/q52	4423.31	0.00	4423.31	0.00	0.00	0.00	0.00	0.00	nan
22	presto/tpcds/q23	276645465.03	19.69	276645490.94	26.75	0.00	25.91	0.00	0.00	0.08508
78	presto/tpcds/q79	1635641.71	10.08	1635642.00	12.30	0.00	0.30	0.00	0.00	0.96446
3	presto/tpcds/q04	126594816.82	849.17	126594846.37	388.47	0.00	29.55	0.00	0.00	0.93975
5	presto/tpcds/q06	2429975.71	4.93	2429976.34	5.98	0.00	0.64	0.00	0.00	0.84444
91	presto/tpcds/q92	397470.36	1.70	397470.51	2.17	0.00	0.15	0.00	0.00	0.89781
84	presto/tpcds/q85	13097846.90	121.96	13097854.22	173.47	0.00	7.31	0.00	0.00	0.93433
60	presto/tpcds/q61	1155600.37	5.38	1155601.19	4.45	0.00	0.83	0.00	0.00	0.77803
74	presto/tpcds/q75	58077259.35	451.42	58077302.50	591.48	0.00	43.15	0.00	0.00	0.88986
94	presto/tpcds/q95	74730217.35	85.01	74730314.28	88.07	0.00	96.93	0.00	0.00	0.08113
86	presto/tpcds/q87	23754246.86	171.32	23754297.47	94.42	0.00	50.60	0.00	0.00	0.54053
12	presto/tpcds/q13	1138425.19	4.53	1138427.68	10.97	0.00	2.49	0.00	0.00	0.61858
27	presto/tpcds/q28	3180515.38	46.16	3180525.63	64.60	0.00	10.25	0.00	0.00	0.75844
15	presto/tpcds/q16	11594616.12	72.56	11594666.12	65.90	0.00	49.99	0.00	0.00	0.23997
16	presto/tpcds/q17	10346120.95	41.26	10346193.41	136.71	0.00	72.47	0.00	0.00	0.24220
48	presto/tpcds/q49	11197867.45	42.05	11197947.21	129.87	0.00	79.77	0.00	0.00	0.18283

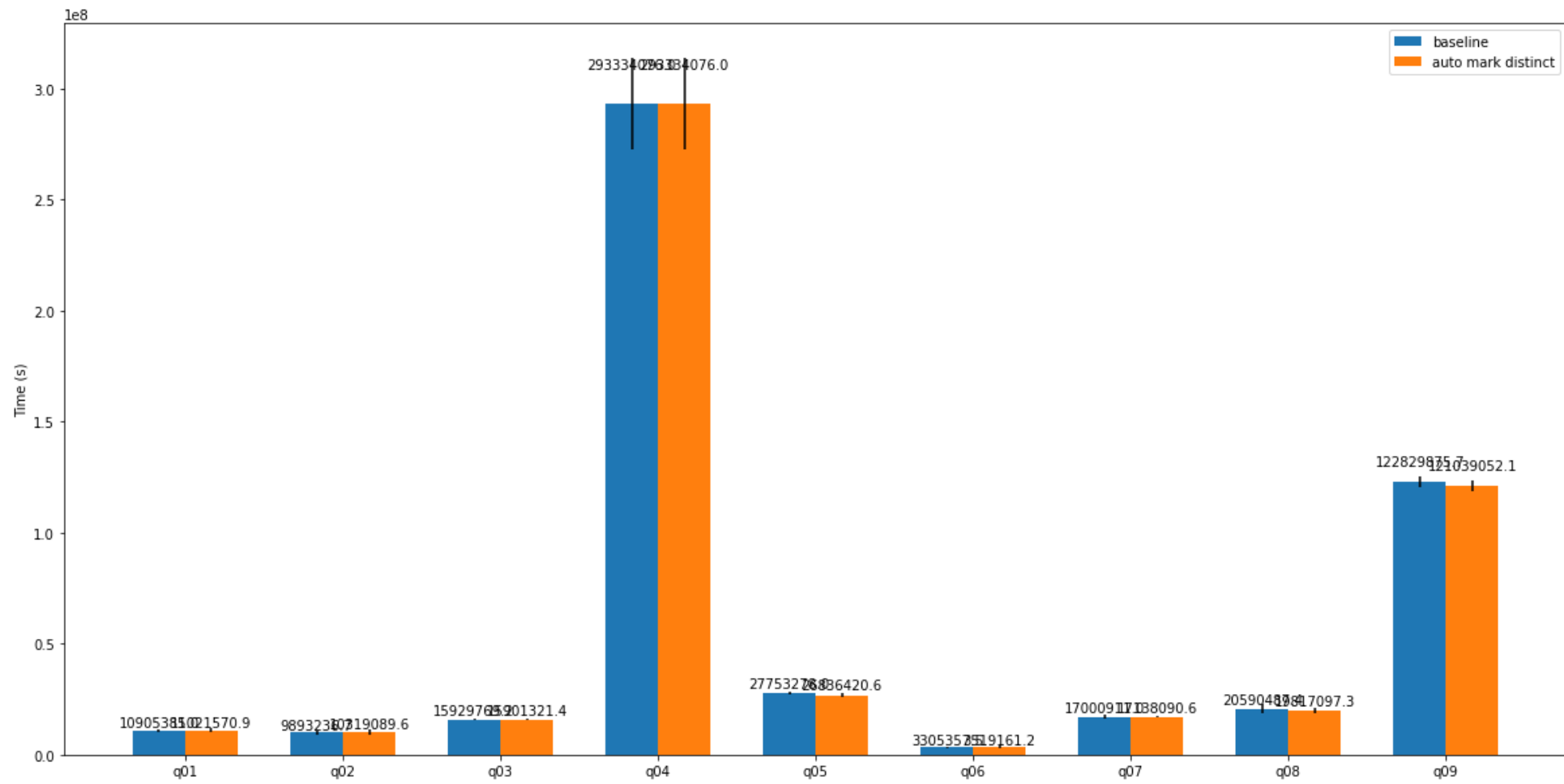
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56	presto/tpcds/q57	2467316.83	23.10	2467336.12	38.07	0.00	19.28	0.00	0.00	0.31382
80	presto/tpcds/q81	5332631.00	172.10	5332720.78	215.14	0.00	89.78	0.00	0.00	0.44330
45	presto/tpcds/q46	783333.40	44.83	783351.07	75.97	0.00	17.67	0.01	0.01	0.63423
98	presto/tpcds/q99	214692.82	85.77	214698.12	100.33	0.00	5.31	0.04	0.05	0.92351
64	presto/tpcds/q65	39198215.47	1035.42	39199284.37	2735.52	0.00	1068.90	0.00	0.01	0.39174
85	presto/tpcds/q86	49227.70	4.71	49229.26	10.64	0.00	1.55	0.01	0.02	0.75046
30	presto/tpcds/q31	13754625.04	1690.47	13755084.16	1263.56	0.00	459.11	0.01	0.01	0.60577
87	presto/tpcds/q88	3748.40	1.82	3748.58	2.61	0.00	0.18	0.05	0.07	0.89504
43	presto/tpcds/q44	525413.34	50.92	525447.71	59.06	0.01	34.37	0.01	0.01	0.30571
34	presto/tpcds/q35	4343105.53	1041.03	4343790.75	717.67	0.02	685.22	0.02	0.02	0.21388
55	presto/tpcds/q56	248840.64	153.39	248926.50	356.32	0.03	85.86	0.06	0.14	0.59959
32	presto/tpcds/q33	1097083.82	458.55	1097831.08	958.26	0.07	747.26	0.04	0.09	0.11561
9	presto/tpcds/q10	309958.07	1098.94	310189.70	1106.10	0.07	231.63	0.35	0.36	0.72352
57	presto/tpcds/q58	489670.19	1633.35	490421.80	5160.69	0.15	751.61	0.33	1.05	0.74080
66	presto/tpcds/q67	140096137.30	349484.10	140408907.23	407106.76	0.22	312769.93	0.25	0.29	0.18380
53	presto/tpcds/q54	10801627.00	589450.98	10829567.37	389795.37	0.26	27940.36	5.46	3.60	0.92476
2	presto/tpcds/q03	2833.82	10.90	2842.66	17.42	0.31	8.84	0.38	0.61	0.31677
81	presto/tpcds/q82	8147.15	28.42	8175.38	56.70	0.35	28.23	0.35	0.69	0.30124
77	presto/tpcds/q78	130162393.53	3748951.80	130818203.90	2821662.76	0.50	655810.37	2.88	2.16	0.73917
6	presto/tpcds/q07	654321.67	5721.21	657990.61	4756.82	0.56	3668.93	0.87	0.72	0.25489
4	presto/tpcds/q05	37283854.46	2273896.33	37923255.86	763346.18	1.71	639401.41	6.10	2.01	0.52850
71	presto/tpcds/q72	21707814.17	1068306.92	22143933.34	26.98	2.01	436119.17	4.92	0.00	0.34091

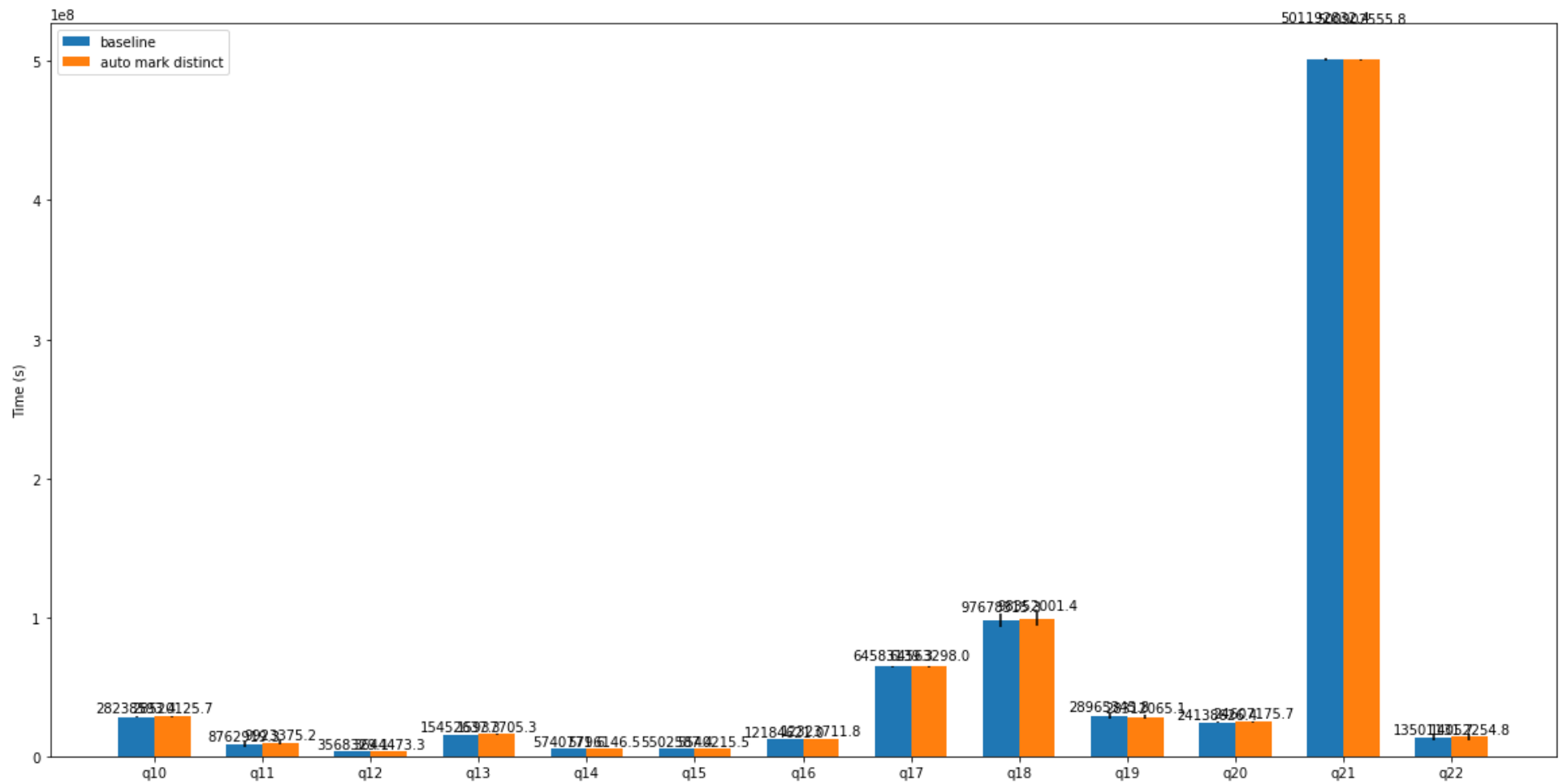
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TPC-H Comparison (Peak memory)





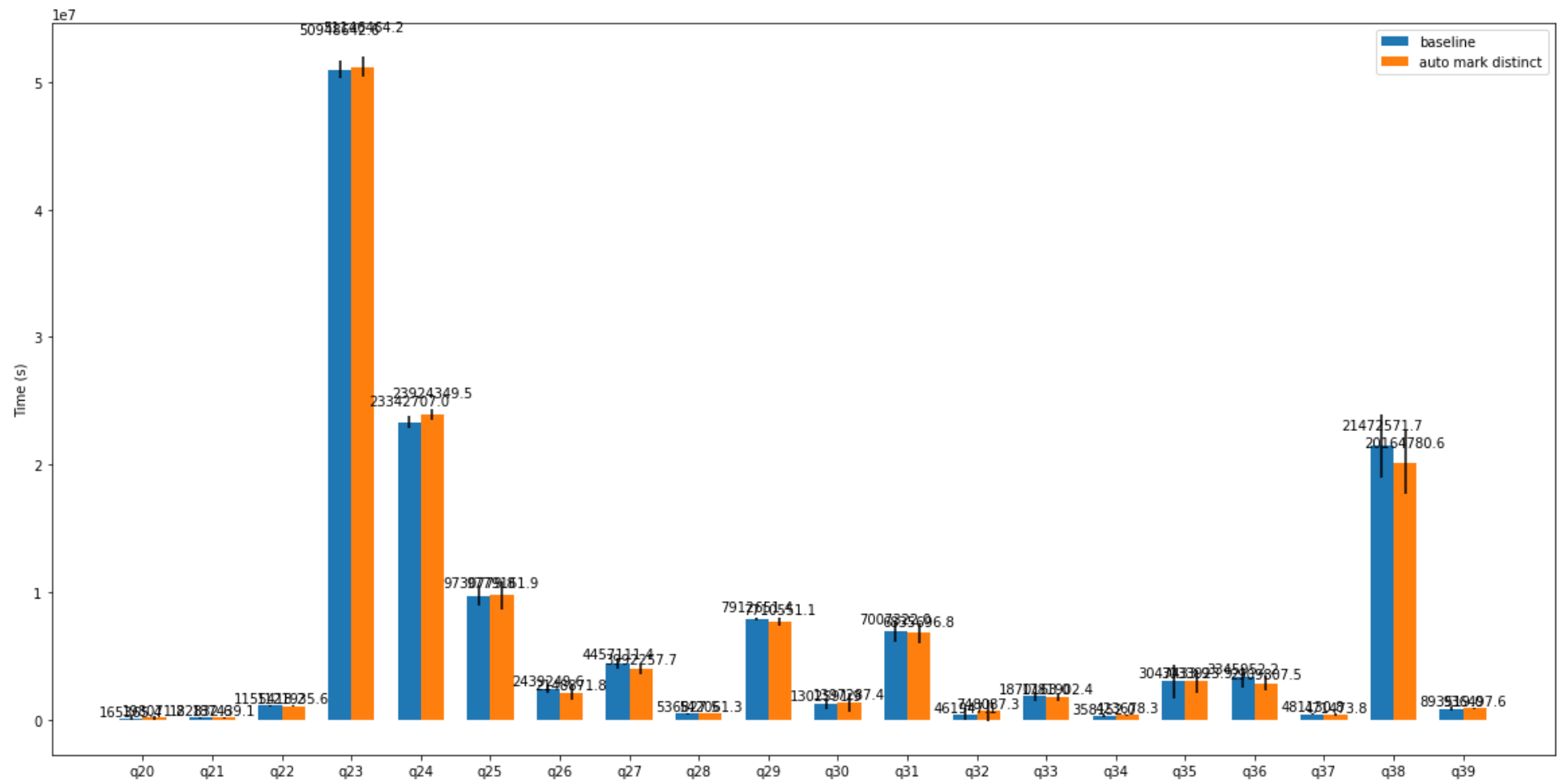
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
7	presto/tpch/q08	20590487.38	2193792.16	19817097.27	1185404.61	-3.76	-773390.11	10.65	5.98	0.46496
4	presto/tpch/q05	27753278.00	416899.74	26836420.61	696270.74	-3.30	-916857.39	1.50	2.59	0.01988
18	presto/tpch/q19	28965345.81	1578946.04	28312065.11	1635081.72	-2.26	-653280.70	5.45	5.78	0.49750
8	presto/tpch/q09	122829875.68	2388274.27	121039052.13	2521971.54	-1.46	-1790823.54	1.94	2.08	0.23527
2	presto/tpch/q03	15929769.22	68400.71	15901321.44	65425.36	-0.18	-28447.79	0.43	0.41	0.47853
20	presto/tpch/q21	501192832.39	1069639.74	500902555.80	562816.29	-0.06	-290276.59	0.21	0.11	0.56940
16	presto/tpch/q17	64583139.28	618049.89	64563298.03	451160.23	-0.03	-19841.25	0.96	0.70	0.95061
3	presto/tpch/q04	293334076.05	20529066.29	293334076.05	20529066.29	0.00	0.00	7.00	7.00	1.00000
14	presto/tpch/q15	5502587.40	63886.35	5540215.46	50393.03	0.68	37628.05	1.16	0.91	0.28375
17	presto/tpch/q18	97678315.34	4523500.51	98352001.42	4805004.95	0.69	673686.08	4.63	4.89	0.80761
6	presto/tpch/q07	17000911.03	833099.94	17138090.58	545727.32	0.81	137179.55	4.90	3.18	0.74280

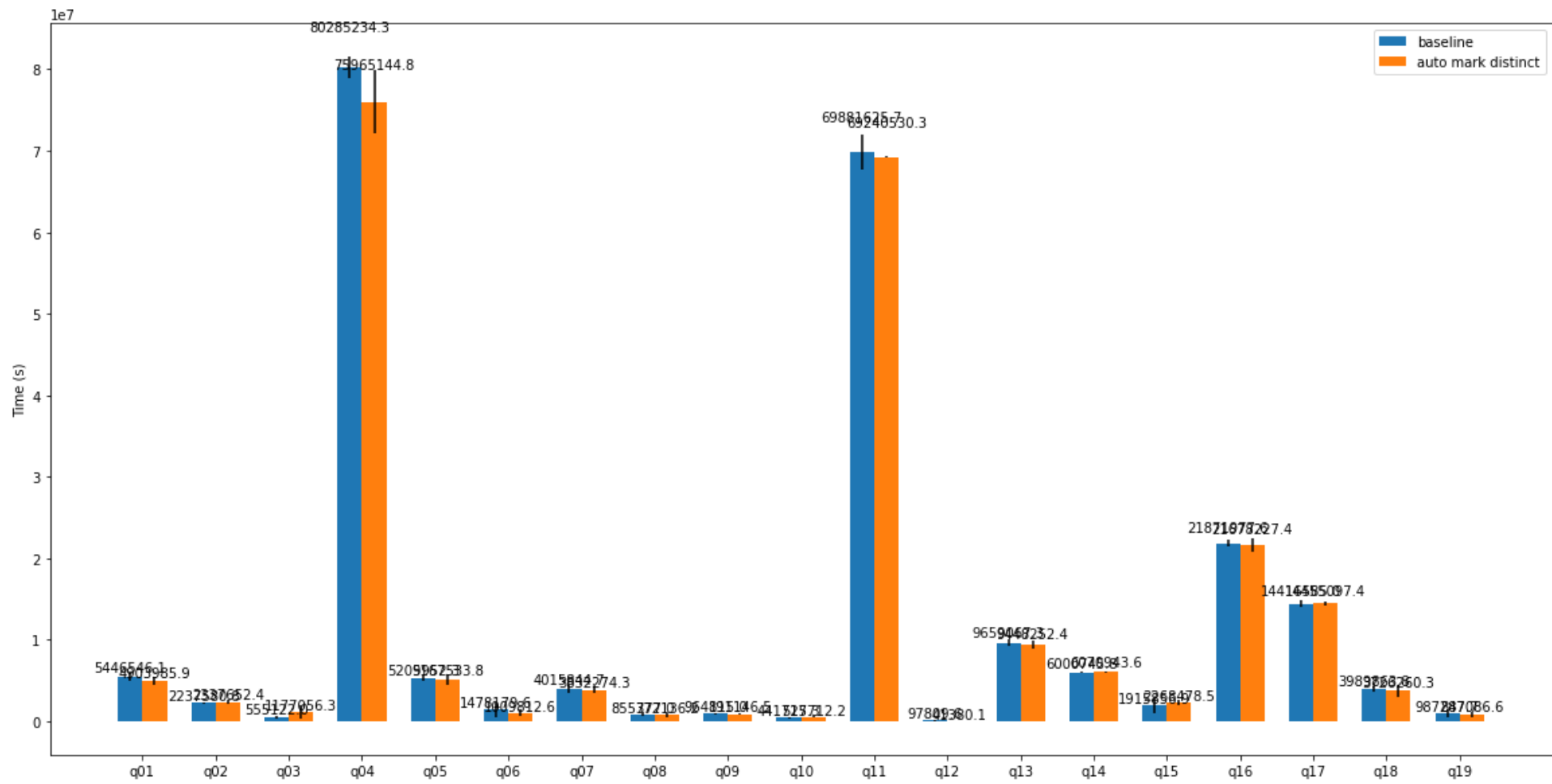
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
13	presto/tpch/q14	5740771.63	101466.33	5796146.51	62789.45	0.96	55374.88	1.77	1.08	0.28215
9	presto/tpch/q10	28238593.45	446944.44	28520125.67	331971.51	1.00	281532.22	1.58	1.16	0.24376
0	presto/tpch/q01	10905384.99	434012.61	11021570.90	696039.74	1.07	116185.91	3.98	6.32	0.73582
15	presto/tpch/q16	12184621.01	200762.79	12323711.84	198156.67	1.14	139090.83	1.65	1.61	0.25491
19	presto/tpch/q20	24138626.36	447910.91	24607175.74	340135.48	1.94	468549.38	1.86	1.38	0.06857
11	presto/tpch/q12	3568329.06	187783.32	3644473.28	234280.66	2.13	76144.22	5.26	6.43	0.54837
12	presto/tpch/q13	15452637.32	249312.58	15937705.30	356411.94	3.14	485067.97	1.61	2.24	0.02113
21	presto/tpch/q22	13501131.69	2372593.78	14052254.79	2190511.72	4.08	551123.10	17.57	15.59	0.68474
1	presto/tpch/q02	9893236.68	981521.29	10319089.62	1202200.71	4.30	425852.93	9.92	11.65	0.51673
5	presto/tpch/q06	3305357.53	283993.69	3519161.21	339736.13	6.47	213803.68	8.59	9.65	0.26428
10	presto/tpch/q11	8762919.25	1699437.45	9923375.23	1096357.31	13.24	1160455.98	19.39	11.05	0.19016

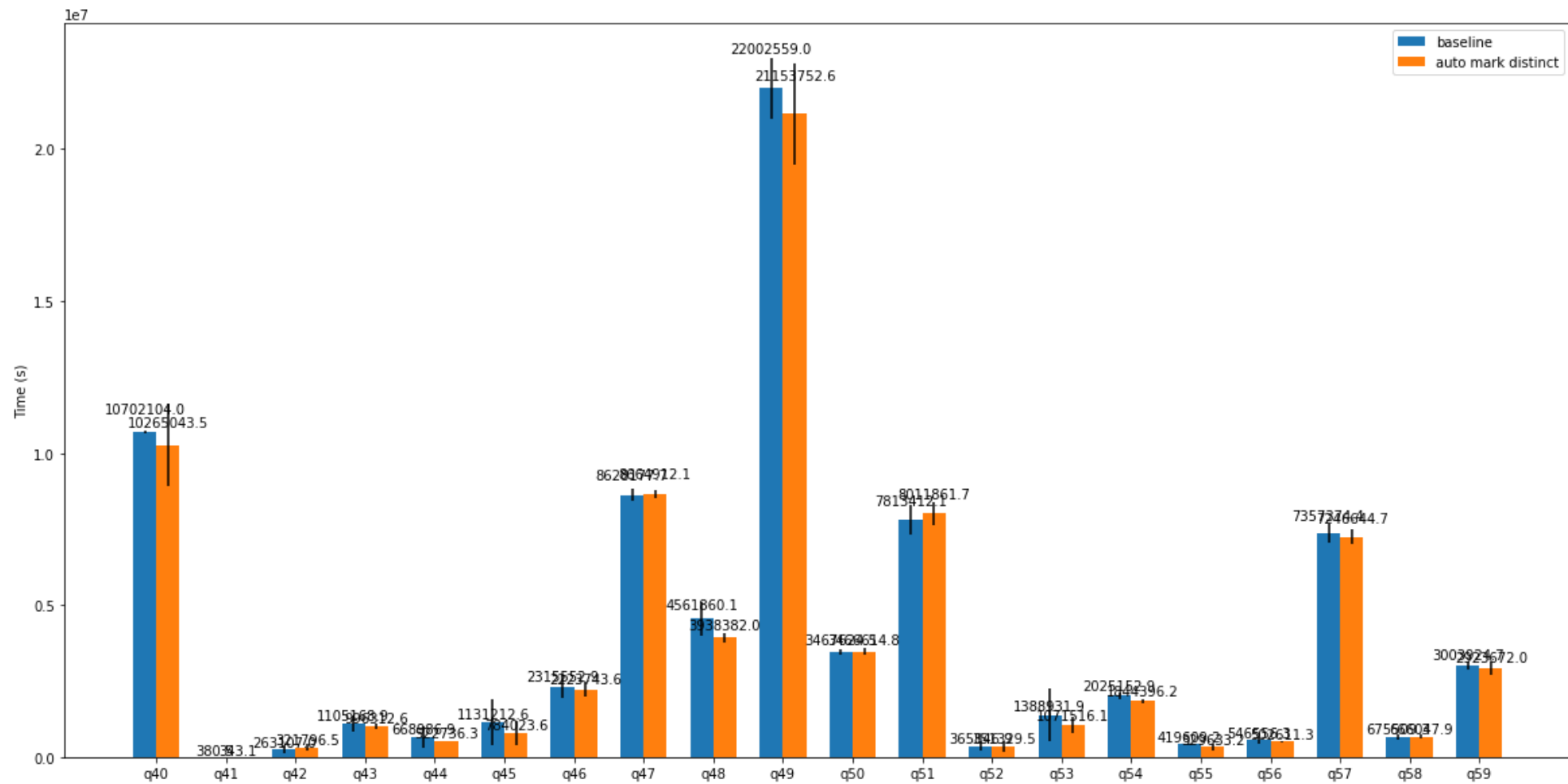
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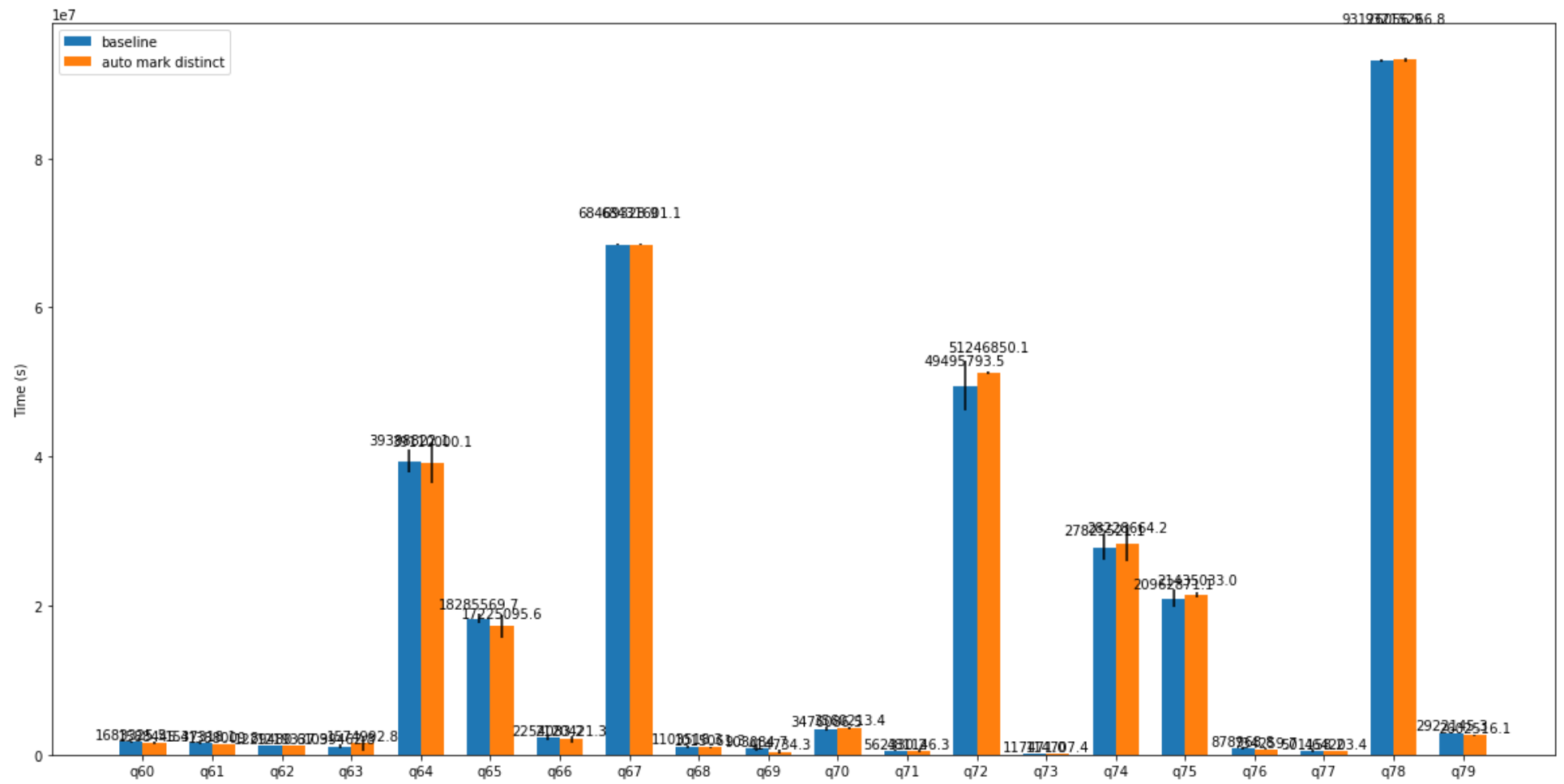
Name: % change, dtype: float64

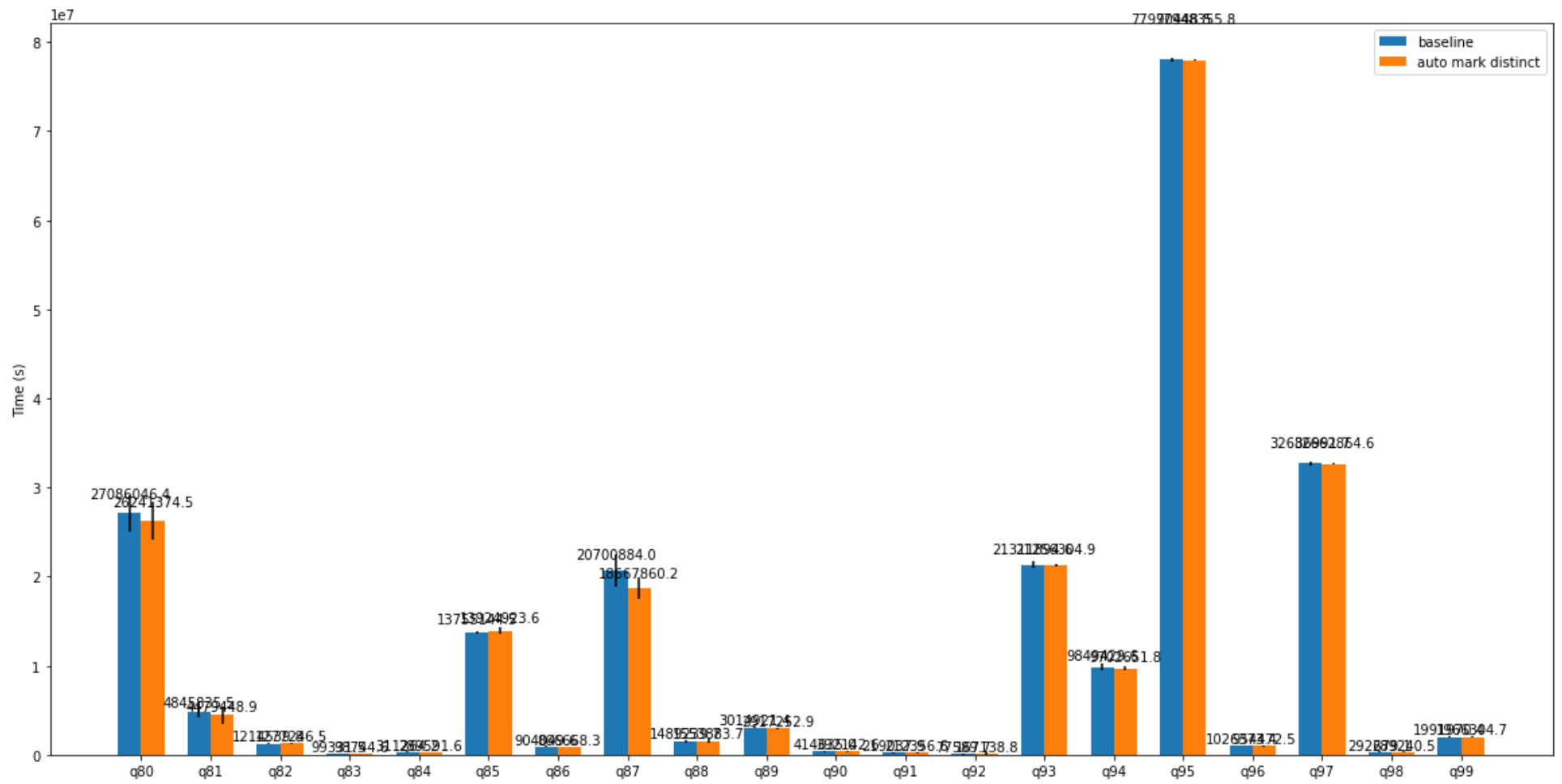
TPC-DS Comparison (Peak memory)

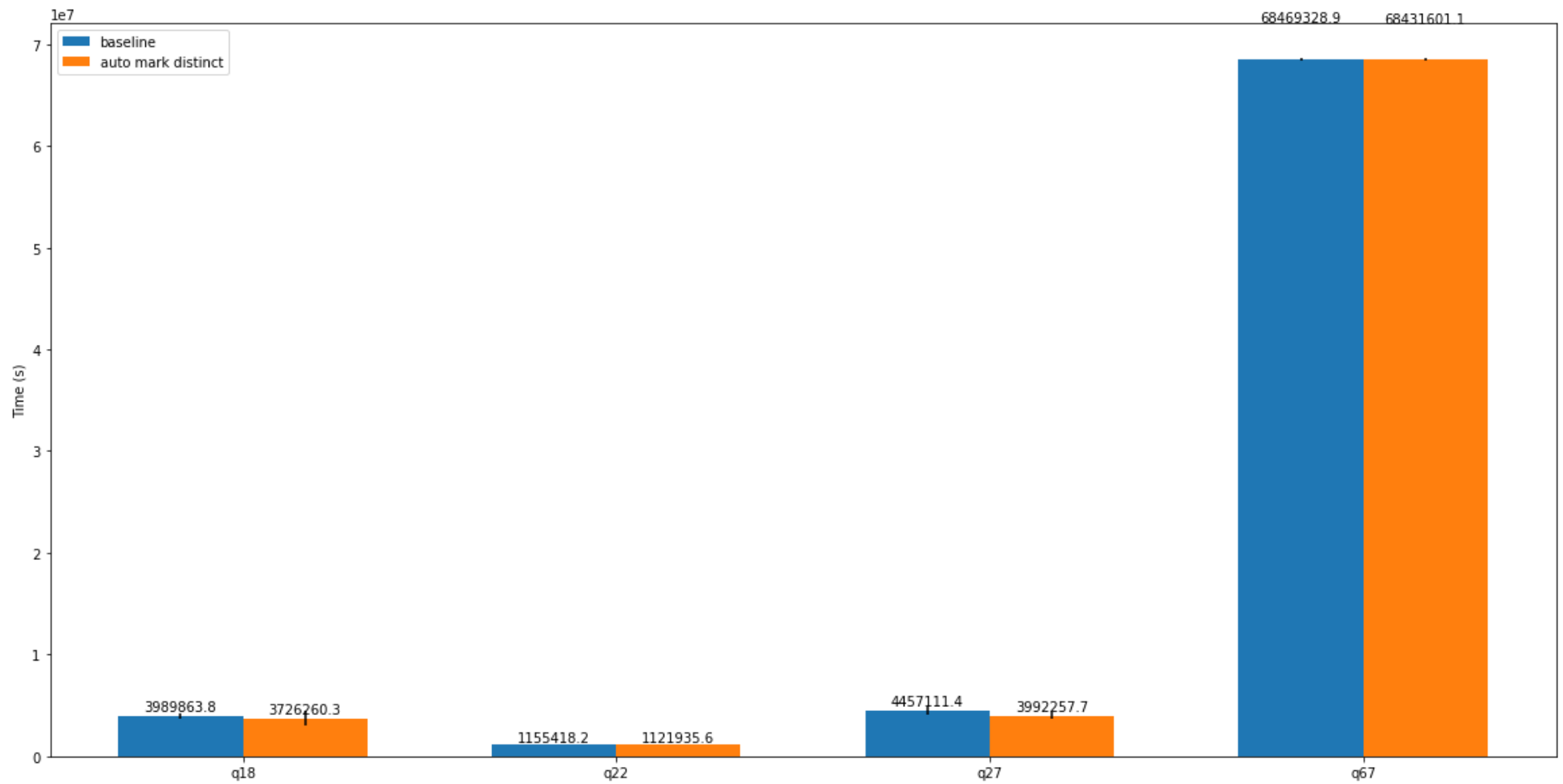












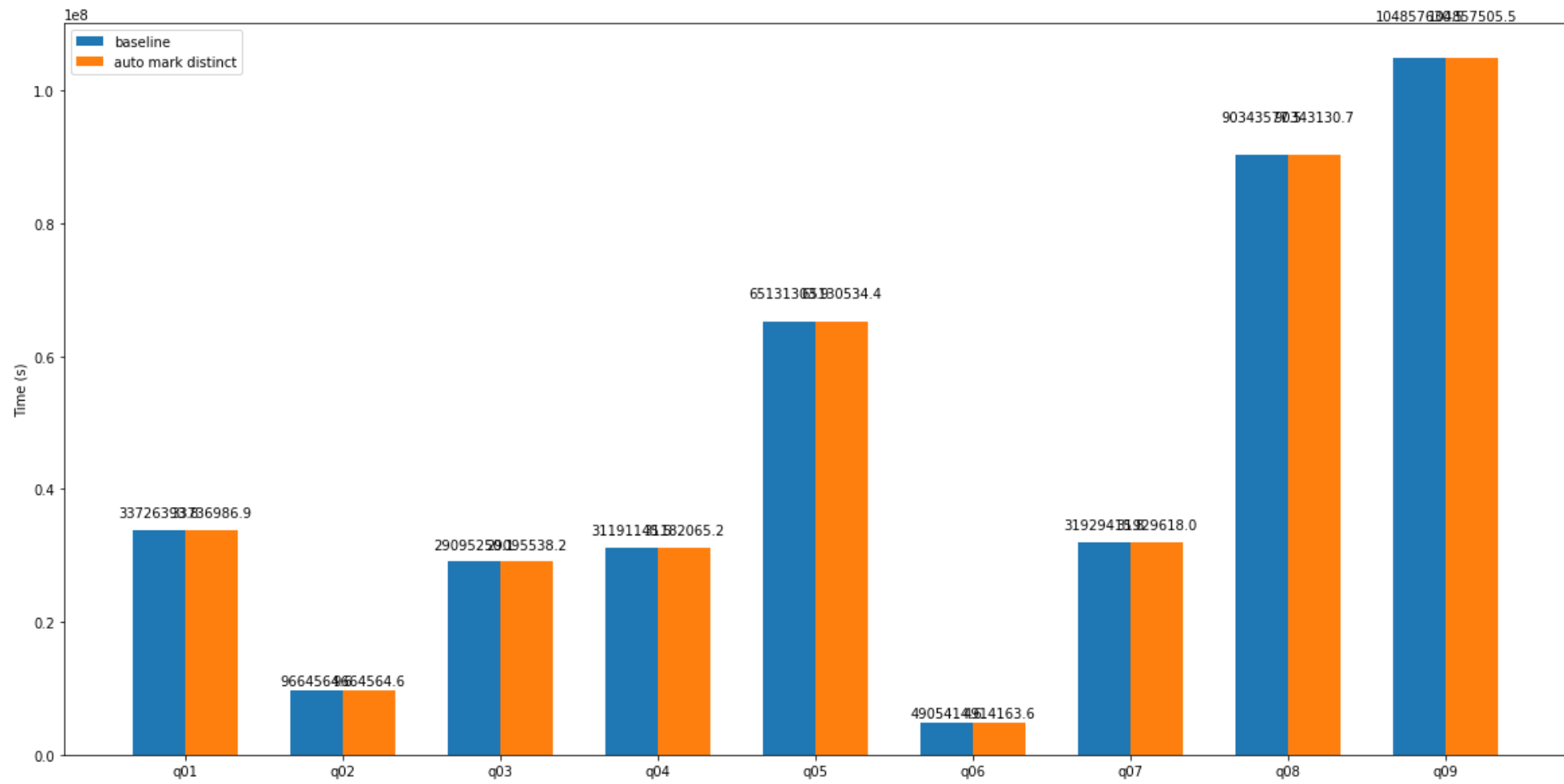
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
11	presto/tpcds/q12	97809.58	108632.05	41380.06	14533.80	-57.69	-56429.52	111.06	35.12	0.23588
68	presto/tpcds/q69	903084.70	436471.86	414734.26	304647.51	-54.08	-488350.44	48.33	73.46	0.04840
5	presto/tpcds/q06	1478179.63	896450.40	1009812.59	423195.42	-31.69	-468367.04	60.65	41.91	0.27404
44	presto/tpcds/q45	1131212.56	750264.63	784023.62	396121.69	-30.69	-347188.94	66.32	50.52	0.33980
52	presto/tpcds/q53	1388931.91	866643.86	1071516.10	263449.68	-22.85	-317415.82	62.40	24.59	0.41079
43	presto/tpcds/q44	668986.87	356901.85	522736.34	12131.15	-21.86	-146250.52	53.35	2.32	0.33944
54	presto/tpcds/q55	419609.19	17189.80	329633.19	106570.37	-21.44	-89976.01	4.10	32.33	0.06845
75	presto/tpcds/q76	878968.81	148040.22	734259.69	54817.00	-16.46	-144709.12	16.84	7.47	0.04856
70	presto/tpcds/q71	562330.19	110760.28	481146.33	188457.63	-14.44	-81183.87	19.70	39.17	0.38438
47	presto/tpcds/q48	4561860.08	552013.39	3938382.02	158804.77	-13.67	-623478.07	12.10	4.03	0.02395
35	presto/tpcds/q36	3345952.20	779255.24	2909807.53	601735.33	-13.03	-436144.67	23.29	20.68	0.30334

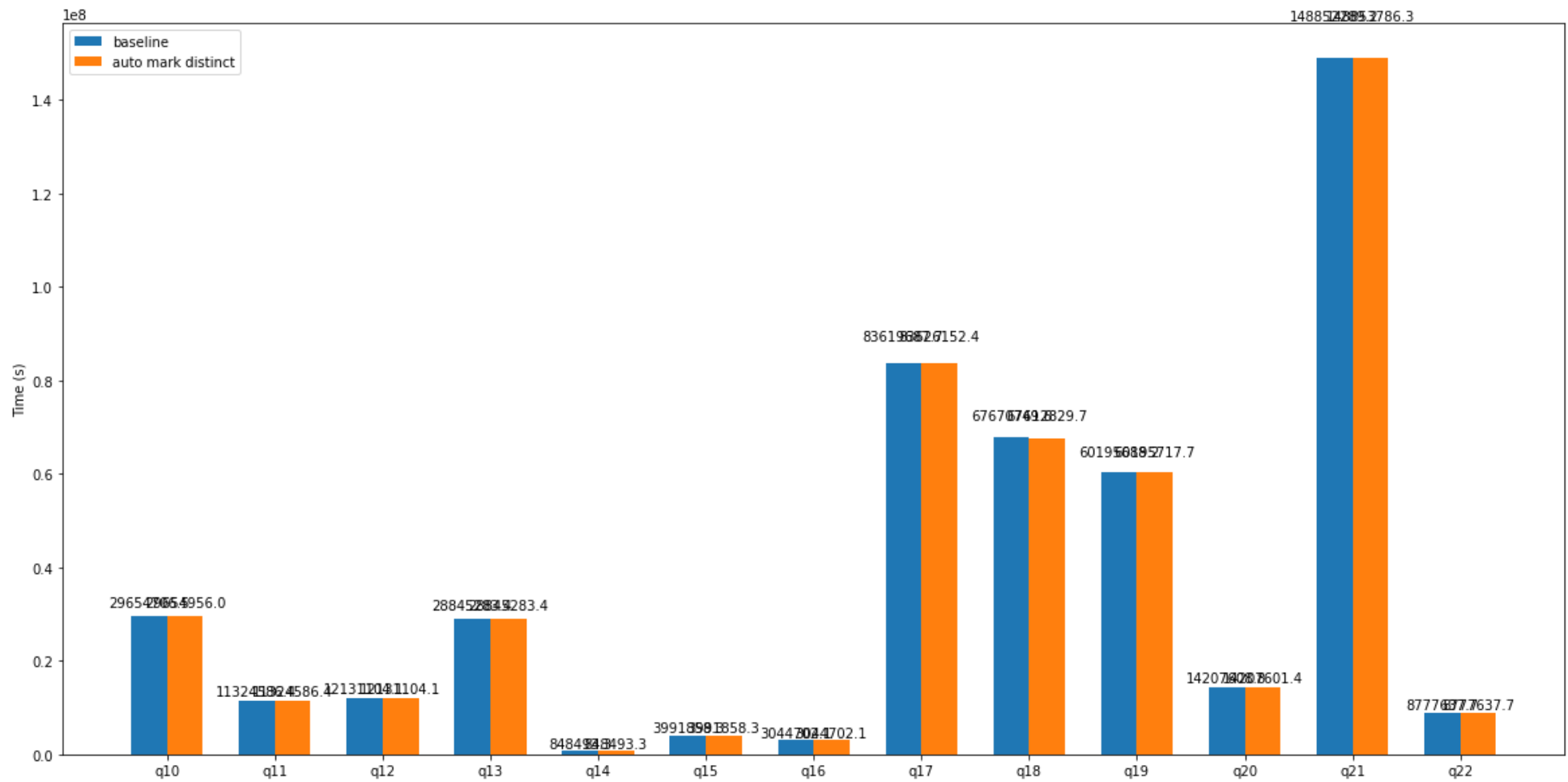
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
25	presto/tpcds/q26	2439249.61	319236.42	2148871.81	578592.67	-11.90	-290377.80	13.09	26.93	0.30705
78	presto/tpcds/q79	2922145.34	134742.40	2602516.07	125025.30	-10.94	-319629.28	4.61	4.80	0.00166
26	presto/tpcds/q27	4457111.36	435107.29	3992257.74	365072.98	-10.43	-464853.62	9.76	9.14	0.07281
18	presto/tpcds/q19	987247.70	457055.40	887086.56	346990.79	-10.15	-100161.14	46.30	39.12	0.67805
0	presto/tpcds/q01	5446546.12	548663.34	4903985.87	482811.26	-9.96	-542560.26	10.07	9.85	0.09903
42	presto/tpcds/q43	1105168.89	259097.55	996312.61	82935.99	-9.85	-108856.28	23.44	8.32	0.35014
40	presto/tpcds/q41	380.47	132.79	343.07	103.31	-9.83	-37.39	34.90	30.11	0.59809
86	presto/tpcds/q87	20700884.03	1788257.32	18667860.17	1211326.84	-9.82	-2033023.87	8.64	6.49	0.04383
7	presto/tpcds/q08	855377.05	229553.94	772136.23	264874.98	-9.73	-83240.81	26.84	34.30	0.57363
60	presto/tpcds/q61	1537318.10	86520.25	1388009.81	52120.25	-9.71	-149308.29	5.63	3.76	0.00468
53	presto/tpcds/q54	2025152.95	105449.66	1844396.23	69154.34	-8.93	-180756.71	5.21	3.75	0.00562
55	presto/tpcds/q56	546556.28	98442.32	502611.28	19668.79	-8.04	-43945.01	18.01	3.91	0.30879
67	presto/tpcds/q68	1103518.26	174640.54	1015061.29	59622.17	-8.02	-88456.97	15.83	5.87	0.26754
8	presto/tpcds/q09	964115.03	81961.29	891146.48	78659.30	-7.57	-72968.54	8.50	8.83	0.14671
80	presto/tpcds/q81	4845835.53	641487.96	4479448.88	983523.41	-7.56	-366386.65	13.24	21.96	0.46235
76	presto/tpcds/q77	501158.20	155396.66	464203.39	9933.92	-7.37	-36954.82	31.01	2.14	0.57389
95	presto/tpcds/q96	1026373.40	34579.78	954472.46	55959.17	-7.01	-71900.94	3.37	5.86	0.02320
83	presto/tpcds/q84	311264.17	40550.69	289591.58	40527.43	-6.96	-21672.59	13.03	13.99	0.37627
17	presto/tpcds/q18	3989863.80	275324.31	3726260.25	764291.51	-6.61	-263603.55	6.90	20.51	0.44517
37	presto/tpcds/q38	21472571.69	2514402.24	20164780.63	2486424.78	-6.09	-1307791.06	11.71	12.33	0.38630
65	presto/tpcds/q66	2254083.23	370130.70	2120421.33	444664.02	-5.93	-133661.90	16.42	20.97	0.58394
64	presto/tpcds/q65	18285569.70	630222.94	17225095.56	1521968.32	-5.80	-1060474.14	3.45	8.84	0.14590
59	presto/tpcds/q60	1683325.49	118558.35	1588445.42	230408.11	-5.64	-94880.08	7.04	14.51	0.39085
89	presto/tpcds/q90	414635.04	79607.31	392142.60	51143.02	-5.42	-22492.44	19.20	13.04	0.57327
3	presto/tpcds/q04	80285234.30	1287783.83	75965144.81	3891564.43	-5.38	-4320089.50	1.60	5.12	0.02734
32	presto/tpcds/q33	1870163.01	359688.68	1781902.42	269028.86	-4.72	-88260.59	19.23	15.10	0.64065
6	presto/tpcds/q07	4015844.67	468255.32	3832274.29	394376.58	-4.57	-183570.38	11.66	10.29	0.47952
85	presto/tpcds/q86	904049.64	55763.91	866668.26	45088.54	-4.13	-37381.38	6.17	5.20	0.23051
39	presto/tpcds/q40	10702103.97	50111.20	10265043.49	1367206.56	-4.08	-437060.48	0.47	13.32	0.45205
51	presto/tpcds/q52	365846.92	158924.60	351329.51	177621.26	-3.97	-14517.41	43.44	50.56	0.88436
45	presto/tpcds/q46	2315552.94	390171.75	2223743.64	253083.33	-3.96	-91809.30	16.85	11.38	0.63911
48	presto/tpcds/q49	22002558.98	988542.18	21153752.63	1647943.91	-3.86	-848806.35	4.49	7.79	0.30468
88	presto/tpcds/q89	3014921.45	68939.34	2917252.88	112617.99	-3.24	-97668.57	2.29	3.86	0.10011

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
79	presto/tpcds/q80	27086046.39	2074454.92	26241374.45	2058045.27	-3.12	-844671.94	7.66	7.84	0.49509
90	presto/tpcds/q91	219037.93	54089.22	212356.57	96451.65	-3.05	-6681.36	24.69	45.42	0.88529
21	presto/tpcds/q22	1155418.20	25446.72	1121935.58	15600.97	-2.90	-33482.62	2.20	1.39	0.02056
58	presto/tpcds/q59	3003924.67	138189.36	2923671.98	233765.49	-2.67	-80252.70	4.60	8.00	0.48572
28	presto/tpcds/q29	7912651.37	127723.36	7710551.11	323247.10	-2.55	-202100.26	1.61	4.19	0.18481
30	presto/tpcds/q31	7007321.96	833281.89	6835696.85	798605.27	-2.45	-171625.12	11.89	11.68	0.72327
72	presto/tpcds/q73	117470.97	24143.77	114707.43	23693.37	-2.35	-2763.54	20.55	20.66	0.84540
12	presto/tpcds/q13	9659067.28	457389.27	9448252.39	491061.72	-2.18	-210814.89	4.74	5.20	0.45939
36	presto/tpcds/q37	481130.83	78734.62	471473.80	87096.33	-2.01	-9657.02	16.36	18.47	0.84437
56	presto/tpcds/q57	7357374.45	309126.97	7246644.68	227976.65	-1.51	-110729.76	4.20	3.15	0.49622
93	presto/tpcds/q94	9849429.60	394482.20	9702651.76	285405.72	-1.49	-146777.84	4.01	2.94	0.47724
57	presto/tpcds/q58	675509.34	90761.20	666047.94	62445.65	-1.40	-9461.40	13.44	9.38	0.83761
98	presto/tpcds/q99	1991970.39	92882.98	1966304.71	108249.99	-1.29	-25665.68	4.66	5.51	0.66877
97	presto/tpcds/q98	292679.11	83411.05	289240.50	79915.57	-1.17	-3438.61	28.50	27.63	0.94331
10	presto/tpcds/q11	69881625.74	2130090.53	69240530.28	90546.62	-0.92	-641095.47	3.05	0.13	0.47831
15	presto/tpcds/q16	21871977.63	361253.67	21678227.42	855805.44	-0.89	-193750.21	1.65	3.95	0.62051
61	presto/tpcds/q62	1229480.59	48341.78	1219337.28	65138.70	-0.83	-10143.31	3.93	5.34	0.76566
4	presto/tpcds/q05	5209952.26	331016.05	5167533.84	682019.09	-0.81	-42418.42	6.35	13.20	0.89371
63	presto/tpcds/q64	39388822.09	1549908.57	39110000.09	2717274.59	-0.71	-278822.00	3.93	6.95	0.83157
82	presto/tpcds/q83	99331.46	6946.19	98744.56	6887.92	-0.59	-586.90	6.99	6.98	0.88608
34	presto/tpcds/q35	3047433.90	1325286.61	3033923.93	880872.87	-0.44	-13509.97	43.49	29.03	0.98382
92	presto/tpcds/q93	21311894.62	357543.88	21256304.88	207124.11	-0.26	-55589.74	1.68	0.97	0.74855
96	presto/tpcds/q97	32686991.67	247309.49	32662864.65	130901.83	-0.07	-24127.02	0.76	0.40	0.83697
66	presto/tpcds/q67	68469328.86	144539.79	68431601.09	128440.83	-0.06	-37727.77	0.21	0.19	0.64297
94	presto/tpcds/q95	77990448.46	196136.95	77948355.76	56143.90	-0.05	-42092.71	0.25	0.07	0.62424
49	presto/tpcds/q50	3467624.48	97572.84	3466614.79	100931.18	-0.03	-1009.69	2.81	2.91	0.98629
77	presto/tpcds/q78	93126056.89	202998.50	93215266.78	246437.94	0.10	89209.89	0.22	0.26	0.50927
16	presto/tpcds/q17	14416584.99	426490.56	14455097.40	256083.65	0.27	38512.41	2.96	1.77	0.85339
22	presto/tpcds/q23	50948642.62	690482.10	51146464.17	819918.39	0.39	197821.55	1.36	1.60	0.66088
46	presto/tpcds/q47	8628177.70	189927.65	8664912.14	129940.81	0.43	36734.44	2.20	1.50	0.70399
24	presto/tpcds/q25	9730779.79	785072.48	9779161.94	1066220.80	0.50	48382.14	8.07	10.90	0.93045
27	presto/tpcds/q28	536827.50	40791.31	542061.27	30691.86	0.97	5233.78	7.60	5.66	0.80679
13	presto/tpcds/q14	6000745.79	71608.76	6070943.56	111998.79	1.17	70197.77	1.19	1.84	0.22492

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
84	presto/tpcds/q85	13755144.54	182227.01	13924923.57	406256.66	1.23	169779.03	1.32	2.92	0.37230
73	presto/tpcds/q74	27825521.10	1749461.28	28228664.24	2293782.43	1.45	403143.14	6.29	8.13	0.73920
74	presto/tpcds/q75	20962871.09	1185737.55	21435033.00	388600.64	2.25	472161.91	5.66	1.81	0.37582
69	presto/tpcds/q70	3476086.50	257743.88	3560213.35	210728.45	2.42	84126.86	7.41	5.92	0.54978
23	presto/tpcds/q24	23342707.02	471469.74	23924349.46	382385.51	2.49	581642.45	2.02	1.60	0.04085
20	presto/tpcds/q21	182832.61	28200.20	187439.15	27154.18	2.52	4606.53	15.42	14.49	0.77906
50	presto/tpcds/q51	7813412.09	497970.66	8011861.69	393436.69	2.54	198449.61	6.37	4.91	0.46140
71	presto/tpcds/q72	49495793.52	3383828.92	51246850.12	206393.53	3.54	1751056.60	6.84	0.40	0.23448
87	presto/tpcds/q88	1489239.73	148415.11	1553883.70	155487.61	4.34	64643.97	9.97	10.01	0.47826
1	presto/tpcds/q02	2237580.80	105758.22	2337652.44	228683.02	4.47	100071.64	4.73	9.78	0.35355
38	presto/tpcds/q39	893518.99	171264.19	936497.59	19615.28	4.81	42978.60	19.17	2.09	0.55502
81	presto/tpcds/q82	1214539.85	82209.81	1277246.54	106289.16	5.16	62706.70	6.77	8.32	0.27963
29	presto/tpcds/q30	1302591.87	448034.79	1397287.40	743110.02	7.27	94695.53	34.40	53.18	0.79466
33	presto/tpcds/q34	358152.01	102502.53	423678.35	57887.68	18.30	65526.34	28.62	13.66	0.20264
14	presto/tpcds/q15	1915856.85	850203.64	2268478.49	319911.97	18.41	352621.64	44.38	14.10	0.36410
9	presto/tpcds/q10	441715.32	111859.53	527712.24	107890.91	19.47	85996.92	25.32	20.45	0.20511
19	presto/tpcds/q20	165365.45	132343.10	198071.15	125679.38	19.78	32705.71	80.03	63.45	0.67003
41	presto/tpcds/q42	263106.98	144113.84	321796.53	98947.07	22.31	58689.55	54.77	30.75	0.43004
62	presto/tpcds/q63	1099462.78	262852.72	1574992.82	1001088.34	43.25	475530.04	23.91	63.56	0.28671
31	presto/tpcds/q32	461947.11	458247.85	748087.27	838695.54	61.94	286140.16	99.20	112.11	0.48017
2	presto/tpcds/q03	555122.03	157984.58	1177056.27	831311.44	112.04	621934.23	28.46	70.63	0.10200
91	presto/tpcds/q92	77589.67	53246.02	167138.80	148219.76	115.41	89549.14	68.63	88.68	0.19388
count	99									
mean	-1									
std	22									
min	-58									
25%	-8									
50%	-2									
75%	0									
max	115									
Name:	% change, dtype: float64									

TPC-H Comparison (physicalInputDataSize)





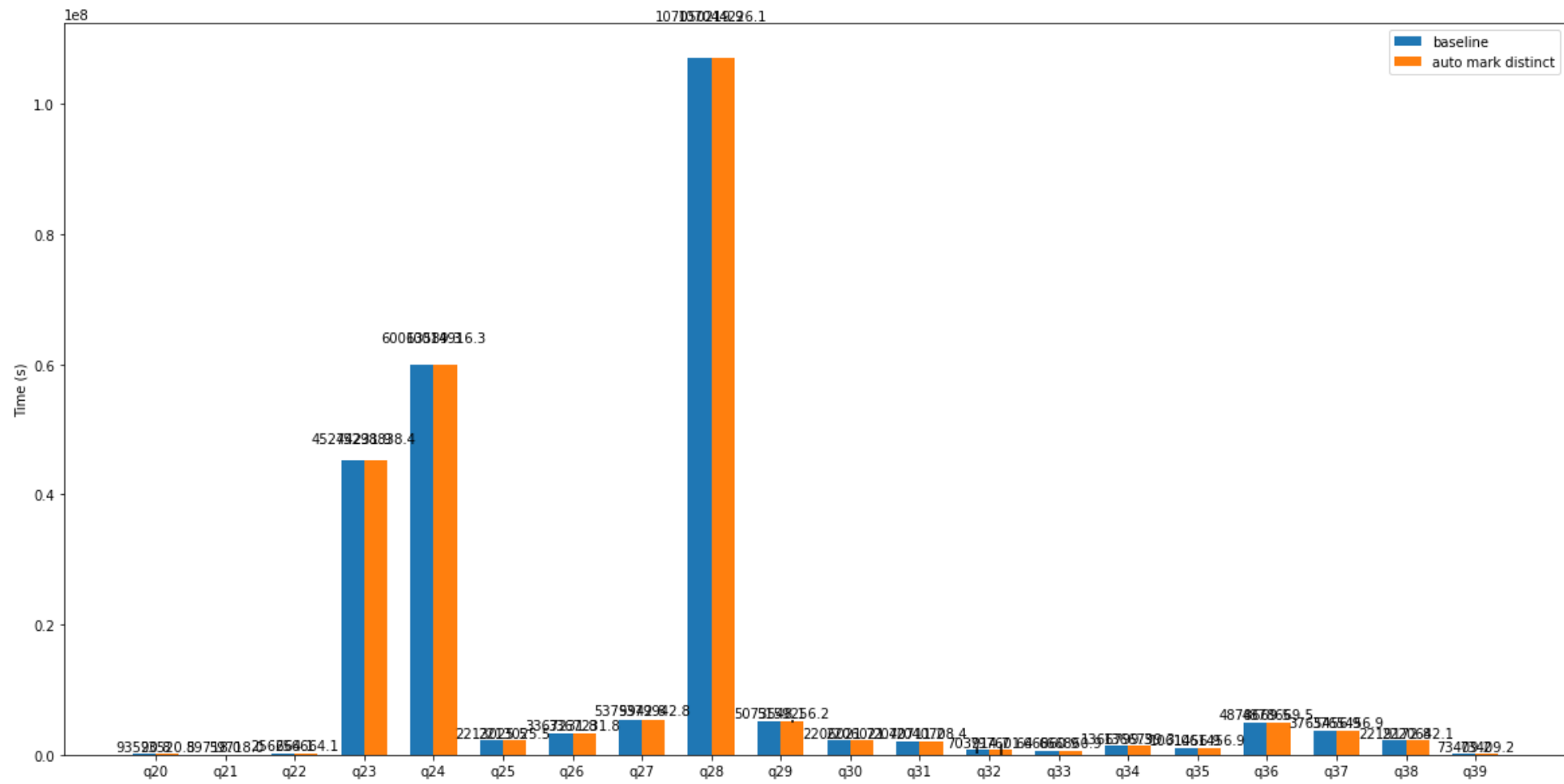
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
17	presto/tpch/q18	67670749.62	5874.75	67612829.73	51796.98	-0.09	-57919.89	0.01	0.08	0.02150
3	presto/tpch/q04	31191145.46	22975.51	31182065.22	32702.15	-0.03	-9080.24	0.07	0.10	0.59009
4	presto/tpch/q05	65131303.91	2225.93	65130534.39	1698.92	-0.00	-769.52	0.00	0.00	0.51611
7	presto/tpch/q08	90343577.53	3692.43	90343130.66	1300.19	-0.00	-446.87	0.00	0.00	0.78547
8	presto/tpch/q09	104857630.55	2502.26	104857505.49	4480.54	-0.00	-125.06	0.00	0.00	0.95358
19	presto/tpch/q20	14207608.80	45.58	14207601.40	24.95	-0.00	-7.41	0.00	0.00	0.73424
10	presto/tpch/q11	11324586.44	0.00	11324586.44	0.00	0.00	0.00	0.00	0.00	nan
15	presto/tpch/q16	3044702.08	0.00	3044702.08	0.00	0.00	0.00	0.00	0.00	nan
14	presto/tpch/q15	3991858.28	0.00	3991858.28	0.00	0.00	0.00	0.00	0.00	nan
13	presto/tpch/q14	848493.32	0.00	848493.32	0.00	0.00	0.00	0.00	0.00	nan
12	presto/tpch/q13	28845283.36	0.00	28845283.36	0.00	0.00	0.00	0.00	0.00	nan

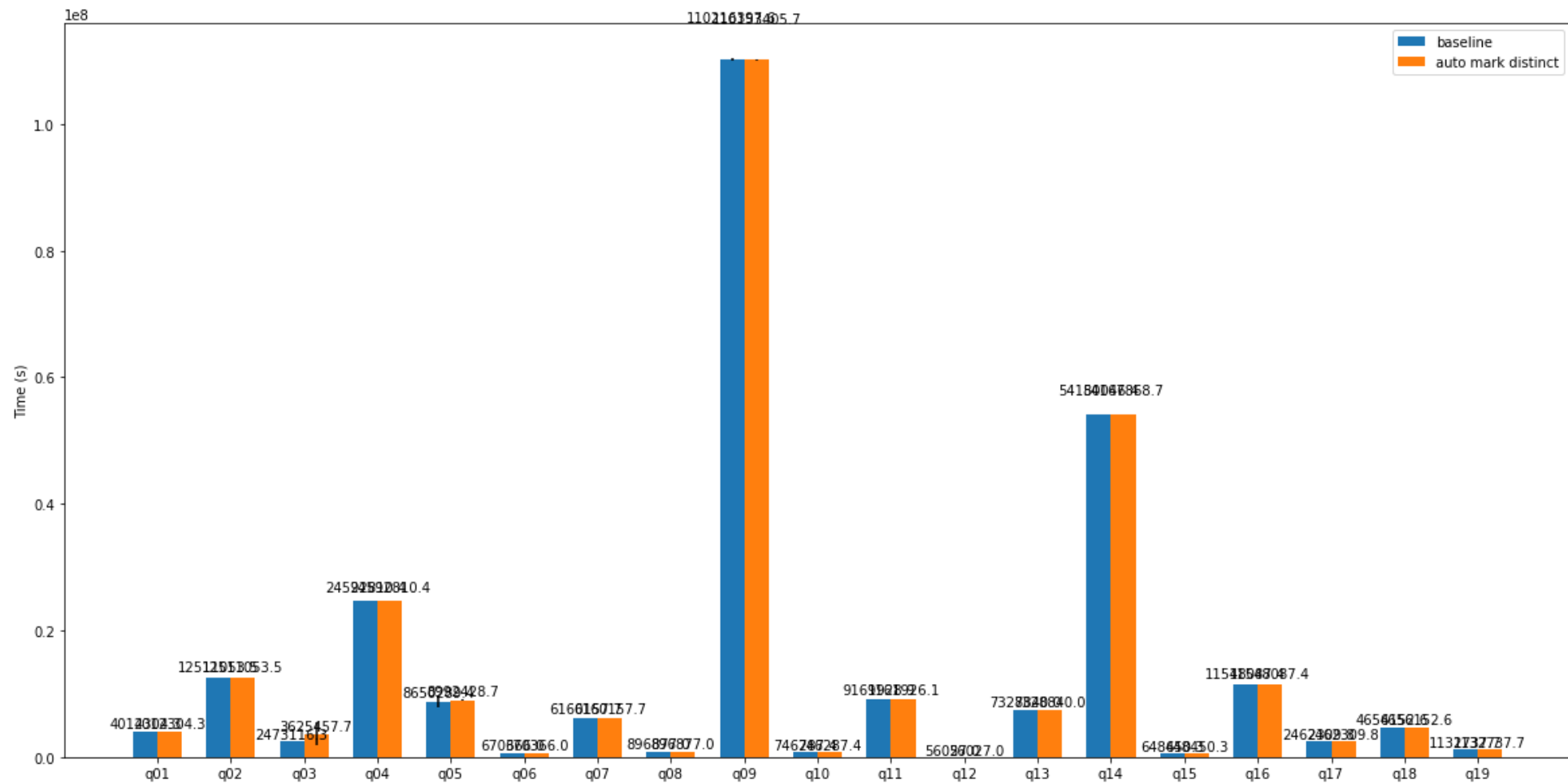
	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
21	presto/tpch/q22	8777637.66	0.00	8777637.66	0.00	0.00	0.00	0.00	0.00	nan
1	presto/tpch/q02	9664564.58	0.00	9664564.58	0.00	0.00	0.00	0.00	0.00	nan
11	presto/tpch/q12	12131104.14	0.00	12131104.14	0.00	0.00	0.00	0.00	0.00	nan
18	presto/tpch/q19	60195688.19	51.69	60195717.66	37.62	0.00	29.47	0.00	0.00	0.28517
6	presto/tpch/q07	31929415.80	275.32	31929617.99	119.40	0.00	202.19	0.00	0.00	0.12988
9	presto/tpch/q10	29654706.55	94.85	29654955.96	573.55	0.00	249.41	0.00	0.00	0.31803
2	presto/tpch/q03	29095250.10	1018.92	29095538.20	1208.85	0.00	288.10	0.00	0.00	0.66485
20	presto/tpch/q21	148852289.21	25607.47	148853786.34	19706.50	0.00	1497.14	0.02	0.01	0.91189
16	presto/tpch/q17	83619687.68	44759.68	83626152.38	61719.36	0.01	6464.70	0.05	0.07	0.83963
0	presto/tpch/q01	33726393.84	24267.25	33736986.87	30316.56	0.03	10593.02	0.07	0.09	0.51914
5	presto/tpch/q06	4905414.59	14465.18	4914163.65	1668.83	0.18	8749.06	0.29	0.03	0.17184

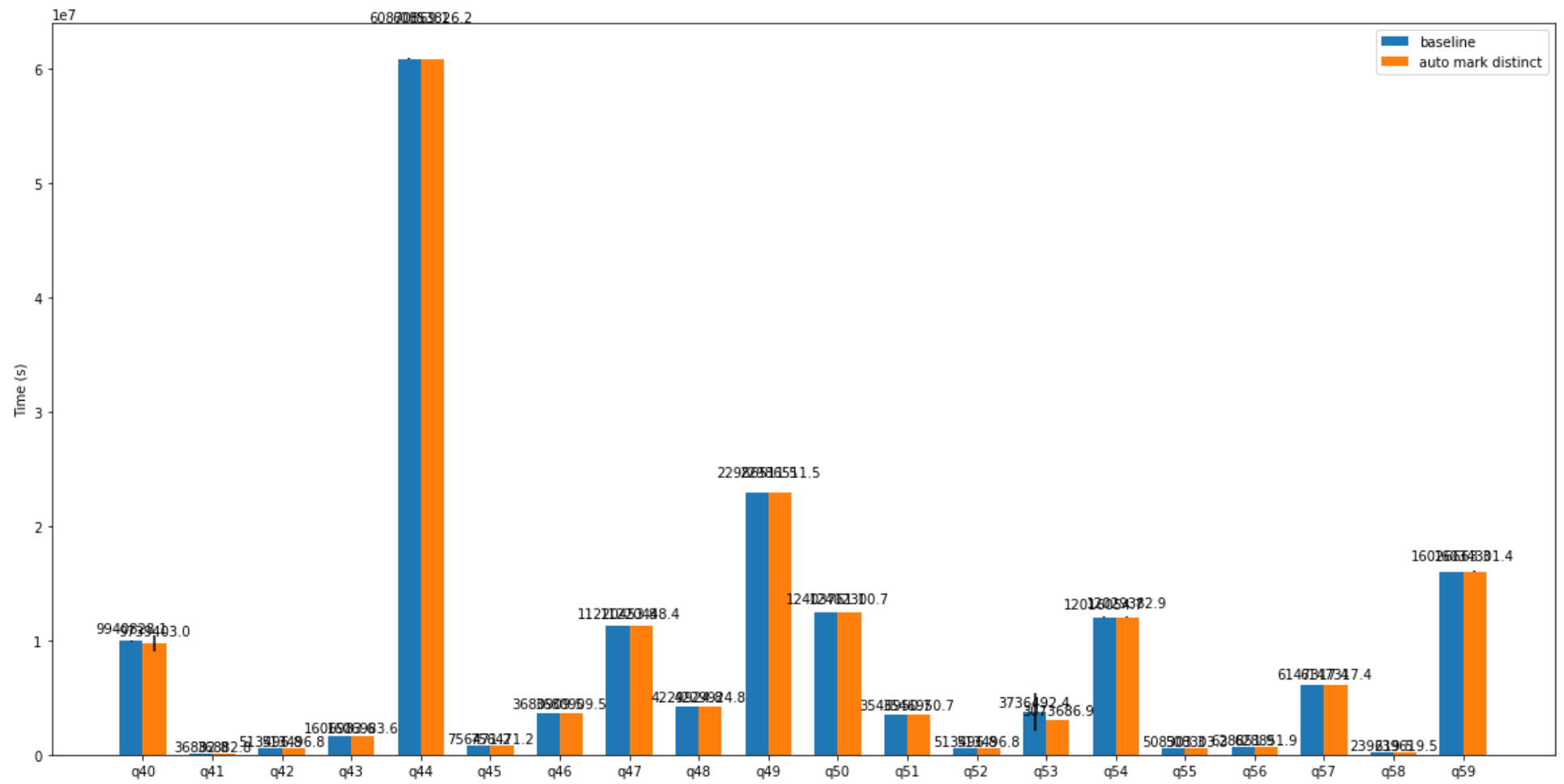
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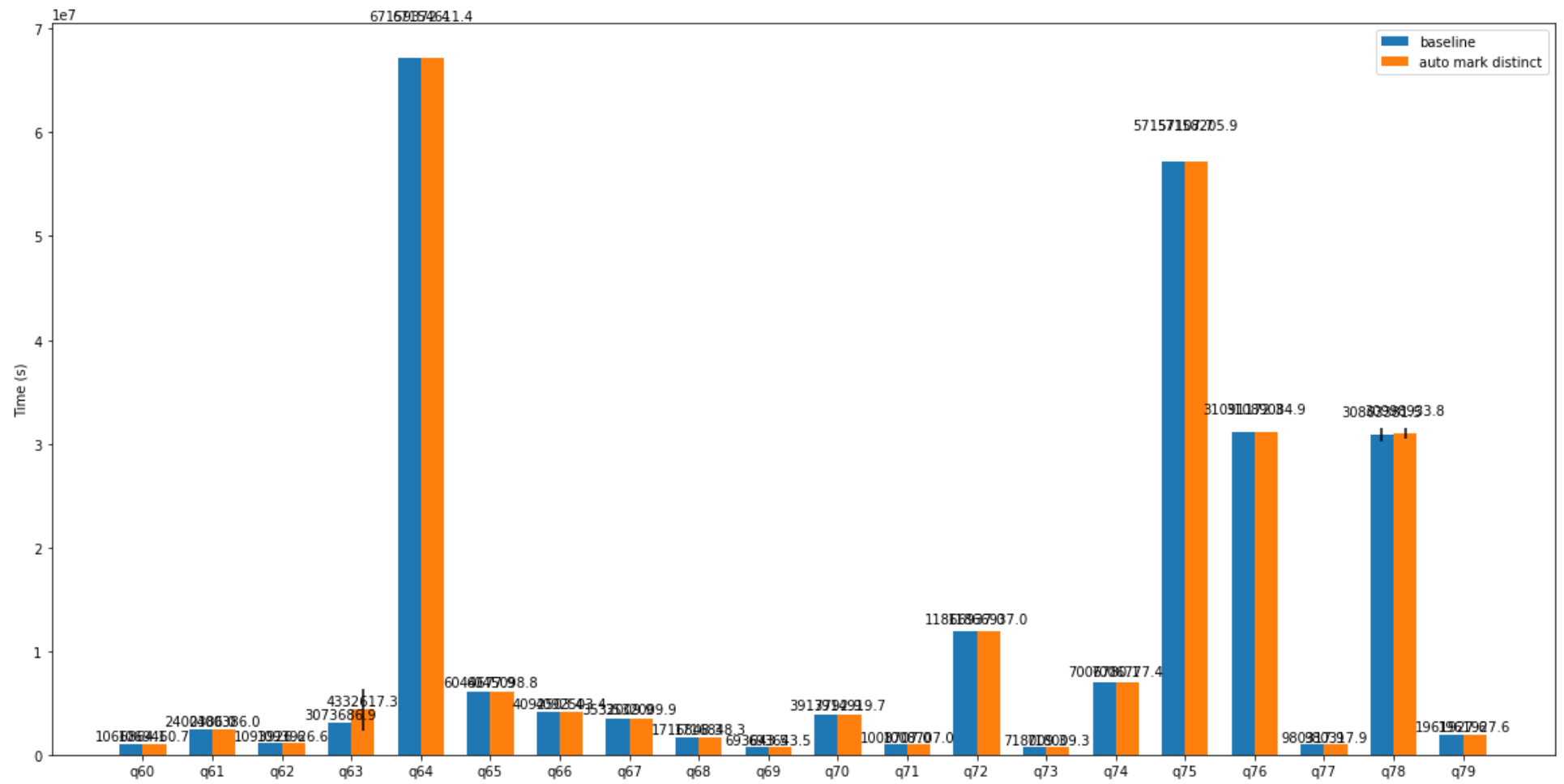
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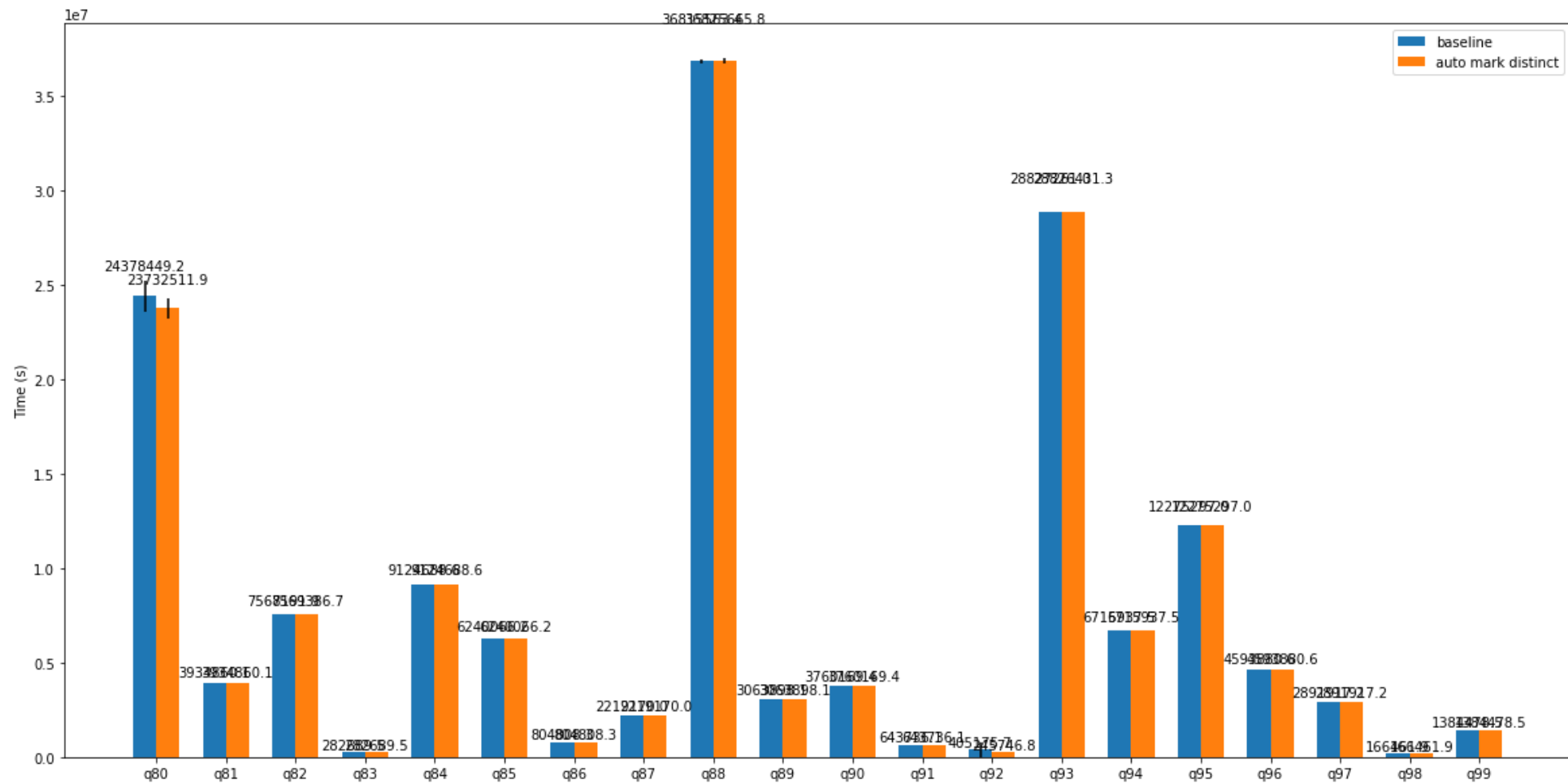
TPC-DS Comparison (physicalInputDataSize)

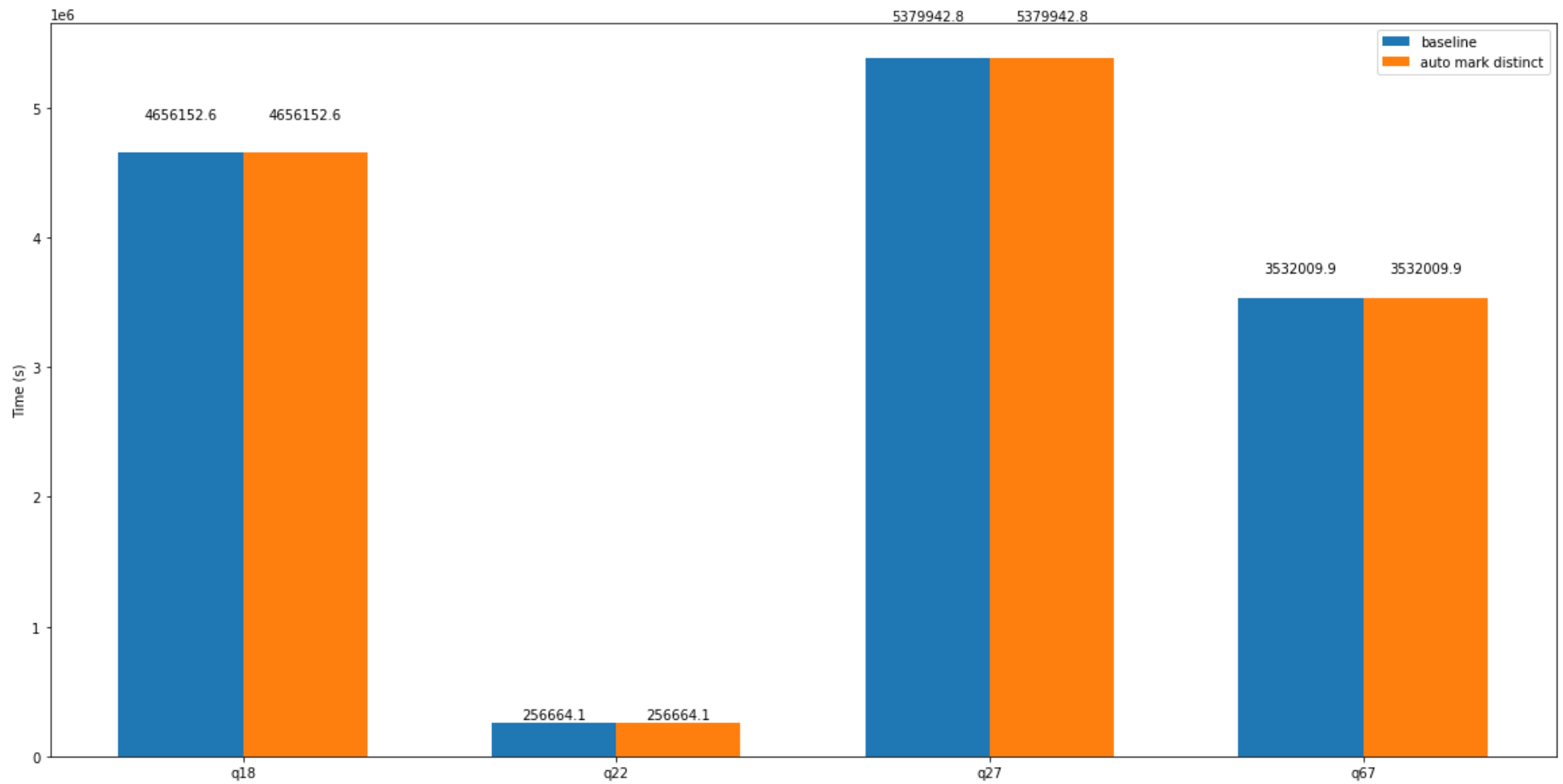












	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
91	presto/tpcds/q92	405175.72	390519.57	245746.77	0.00	-39.35	-159428.95	96.38	0.00	0.34089
52	presto/tpcds/q53	3736492.36	1623535.19	3073686.90	0.00	-17.74	-662805.47	43.45	0.00	0.34089
79	presto/tpcds/q80	24378449.17	820059.49	23732511.88	529520.85	-2.65	-645937.29	3.36	2.23	0.13612
39	presto/tpcds/q40	9940828.11	65165.04	9739403.00	668029.37	-2.03	-201425.11	0.66	6.86	0.47917
69	presto/tpcds/q70	3917792.92	7046.06	3914919.66	0.00	-0.07	-2873.26	0.18	0.00	0.34142
8	presto/tpcds/q09	110216397.58	207721.77	110153405.73	168989.11	-0.06	-62991.85	0.19	0.15	0.57721
43	presto/tpcds/q44	60870869.08	65777.52	60853826.22	24422.79	-0.03	-17042.86	0.11	0.04	0.56508
13	presto/tpcds/q14	54180046.41	18472.52	54167868.69	14.65	-0.02	-12177.73	0.03	0.00	0.13743
49	presto/tpcds/q50	12403761.06	3577.03	12402300.74	0.00	-0.01	-1460.32	0.03	0.00	0.34089
63	presto/tpcds/q64	67159372.43	12155.84	67154611.37	493.68	-0.01	-4761.06	0.02	0.00	0.36036
75	presto/tpcds/q76	31091172.35	3824.80	31089084.90	2286.43	-0.01	-2087.45	0.01	0.01	0.27790

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
27	presto/tpcds/q28	107050219.89	32219.92	107044226.07	35422.31	-0.01	-5993.81	0.03	0.03	0.76543
92	presto/tpcds/q93	28827260.98	2032.39	28826431.26	0.00	-0.00	-829.72	0.01	0.00	0.34089
30	presto/tpcds/q31	2040711.17	8.46	2040708.44	6.69	-0.00	-2.73	0.00	0.00	0.54901
46	presto/tpcds/q47	11220453.84	13.38	11220448.38	0.00	-0.00	-5.46	0.00	0.00	0.34089
73	presto/tpcds/q74	7006780.08	6.69	7006777.35	0.00	-0.00	-2.73	0.00	0.00	0.34089
10	presto/tpcds/q11	9161928.86	6.69	9161926.13	0.00	-0.00	-2.73	0.00	0.00	0.34089
83	presto/tpcds/q84	9124688.58	0.00	9124688.58	0.00	0.00	0.00	0.00	0.00	nan
50	presto/tpcds/q51	3546950.67	0.00	3546950.67	0.00	0.00	0.00	0.00	0.00	nan
51	presto/tpcds/q52	513496.79	0.00	513496.79	0.00	0.00	0.00	0.00	0.00	nan
96	presto/tpcds/q97	2891917.21	0.00	2891917.21	0.00	0.00	0.00	0.00	0.00	nan
95	presto/tpcds/q96	4593880.64	1025.18	4593880.64	1025.18	0.00	0.00	0.02	0.02	1.00000
54	presto/tpcds/q55	508303.26	0.00	508303.26	0.00	0.00	0.00	0.00	0.00	nan
55	presto/tpcds/q56	628851.90	0.00	628851.90	0.00	0.00	0.00	0.00	0.00	nan
94	presto/tpcds/q95	12275296.97	0.00	12275296.97	0.00	0.00	0.00	0.00	0.00	nan
56	presto/tpcds/q57	6147317.41	0.00	6147317.41	0.00	0.00	0.00	0.00	0.00	nan
57	presto/tpcds/q58	239619.45	0.00	239619.45	0.00	0.00	0.00	0.00	0.00	nan
60	presto/tpcds/q61	2400385.99	0.00	2400385.99	0.00	0.00	0.00	0.00	0.00	nan
61	presto/tpcds/q62	1093926.63	0.00	1093926.63	0.00	0.00	0.00	0.00	0.00	nan
93	presto/tpcds/q94	6715937.48	0.00	6715937.48	0.00	0.00	0.00	0.00	0.00	nan
65	presto/tpcds/q66	4092503.44	0.00	4092503.44	0.00	0.00	0.00	0.00	0.00	nan
66	presto/tpcds/q67	3532009.88	0.00	3532009.88	0.00	0.00	0.00	0.00	0.00	nan
67	presto/tpcds/q68	1716848.27	0.00	1716848.27	0.00	0.00	0.00	0.00	0.00	nan
90	presto/tpcds/q91	643736.14	0.00	643736.14	0.00	0.00	0.00	0.00	0.00	nan
68	presto/tpcds/q69	693643.49	0.00	693643.49	0.00	0.00	0.00	0.00	0.00	nan
89	presto/tpcds/q90	3760169.41	0.00	3760169.41	0.00	0.00	0.00	0.00	0.00	nan
70	presto/tpcds/q71	1008706.97	0.00	1008706.97	0.00	0.00	0.00	0.00	0.00	nan
71	presto/tpcds/q72	11866936.96	0.00	11866936.96	0.00	0.00	0.00	0.00	0.00	nan
72	presto/tpcds/q73	718009.32	0.00	718009.32	0.00	0.00	0.00	0.00	0.00	nan
88	presto/tpcds/q89	3063898.10	0.00	3063898.10	0.00	0.00	0.00	0.00	0.00	nan
86	presto/tpcds/q87	2219170.03	0.00	2219170.03	0.00	0.00	0.00	0.00	0.00	nan
76	presto/tpcds/q77	980317.88	0.00	980317.88	0.00	0.00	0.00	0.00	0.00	nan
78	presto/tpcds/q79	1961927.56	0.00	1961927.56	0.00	0.00	0.00	0.00	0.00	nan
85	presto/tpcds/q86	804808.32	0.00	804808.32	0.00	0.00	0.00	0.00	0.00	nan

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
80	presto/tpcds/q81	3934860.12	0.00	3934860.12	0.00	0.00	0.00	0.00	0.00	nan
82	presto/tpcds/q83	282689.53	0.00	282689.53	0.00	0.00	0.00	0.00	0.00	nan
84	presto/tpcds/q85	6240066.21	0.00	6240066.21	0.00	0.00	0.00	0.00	0.00	nan
97	presto/tpcds/q98	166461.95	0.00	166461.95	0.00	0.00	0.00	0.00	0.00	nan
0	presto/tpcds/q01	4012304.35	0.00	4012304.35	0.00	0.00	0.00	0.00	0.00	nan
47	presto/tpcds/q48	4229924.79	0.00	4229924.79	0.00	0.00	0.00	0.00	0.00	nan
24	presto/tpcds/q25	2213025.51	0.00	2213025.51	0.00	0.00	0.00	0.00	0.00	nan
48	presto/tpcds/q49	22986511.50	0.00	22986511.50	0.00	0.00	0.00	0.00	0.00	nan
21	presto/tpcds/q22	256664.14	0.00	256664.14	0.00	0.00	0.00	0.00	0.00	nan
20	presto/tpcds/q21	59717.96	0.00	59717.96	0.00	0.00	0.00	0.00	0.00	nan
19	presto/tpcds/q20	93520.77	0.00	93520.77	0.00	0.00	0.00	0.00	0.00	nan
18	presto/tpcds/q19	1132737.69	0.00	1132737.69	0.00	0.00	0.00	0.00	0.00	nan
17	presto/tpcds/q18	4656152.64	0.00	4656152.64	0.00	0.00	0.00	0.00	0.00	nan
16	presto/tpcds/q17	2462309.84	0.00	2462309.84	0.00	0.00	0.00	0.00	0.00	nan
25	presto/tpcds/q26	3367231.79	0.00	3367231.79	0.00	0.00	0.00	0.00	0.00	nan
15	presto/tpcds/q16	11548087.40	0.00	11548087.40	0.00	0.00	0.00	0.00	0.00	nan
12	presto/tpcds/q13	7328839.98	0.00	7328839.98	0.00	0.00	0.00	0.00	0.00	nan
11	presto/tpcds/q12	56027.04	0.00	56027.04	0.00	0.00	0.00	0.00	0.00	nan
9	presto/tpcds/q10	746287.39	0.00	746287.39	0.00	0.00	0.00	0.00	0.00	nan
7	presto/tpcds/q08	896876.96	0.00	896876.96	0.00	0.00	0.00	0.00	0.00	nan
6	presto/tpcds/q07	6160157.66	0.00	6160157.66	0.00	0.00	0.00	0.00	0.00	nan
5	presto/tpcds/q06	670366.04	0.00	670366.04	0.00	0.00	0.00	0.00	0.00	nan
3	presto/tpcds/q04	24592810.41	6.69	24592810.41	6.69	0.00	0.00	0.00	0.00	1.00000
1	presto/tpcds/q02	12511053.45	0.00	12511053.45	0.00	0.00	0.00	0.00	0.00	nan
14	presto/tpcds/q15	648450.32	0.00	648450.32	0.00	0.00	0.00	0.00	0.00	nan
26	presto/tpcds/q27	5379942.75	0.00	5379942.75	0.00	0.00	0.00	0.00	0.00	nan
98	presto/tpcds/q99	1384478.50	0.00	1384478.50	0.00	0.00	0.00	0.00	0.00	nan
29	presto/tpcds/q30	2206021.71	0.00	2206021.71	0.00	0.00	0.00	0.00	0.00	nan
45	presto/tpcds/q46	3680909.55	0.00	3680909.55	0.00	0.00	0.00	0.00	0.00	nan
32	presto/tpcds/q33	666860.92	0.00	666860.92	0.00	0.00	0.00	0.00	0.00	nan
44	presto/tpcds/q45	756471.25	0.00	756471.25	0.00	0.00	0.00	0.00	0.00	nan
33	presto/tpcds/q34	1366799.28	0.00	1366799.28	0.00	0.00	0.00	0.00	0.00	nan
42	presto/tpcds/q43	1606983.62	0.00	1606983.62	0.00	0.00	0.00	0.00	0.00	nan

	query	baseline mean	baseline std.dev	auto mark distinct mean	auto mark distinct std.dev	% change	absolute change	baseline std.dev %	auto mark distinct std.dev %	p-value
41	presto/tpcds/q42	513496.79	0.00	513496.79	0.00	0.00	0.00	0.00	0.00	nan
34	presto/tpcds/q35	1061456.91	0.00	1061456.91	0.00	0.00	0.00	0.00	0.00	nan
40	presto/tpcds/q41	36882.75	0.00	36882.75	0.00	0.00	0.00	0.00	0.00	nan
38	presto/tpcds/q39	73409.21	0.00	73409.21	0.00	0.00	0.00	0.00	0.00	nan
35	presto/tpcds/q36	4878669.54	0.00	4878669.54	0.00	0.00	0.00	0.00	0.00	nan
36	presto/tpcds/q37	3765456.89	0.00	3765456.89	0.00	0.00	0.00	0.00	0.00	nan
74	presto/tpcds/q75	57157107.66	6.69	57158205.92	2696.87	0.00	1098.26	0.00	0.00	0.34204
23	presto/tpcds/q24	60013589.34	5559.07	60014916.27	7817.54	0.00	1326.93	0.01	0.01	0.74174
64	presto/tpcds/q65	6044677.90	0.00	6045098.83	1031.07	0.01	420.93	0.00	0.02	0.34089
81	presto/tpcds/q82	7568191.95	0.00	7569386.67	2926.47	0.02	1194.72	0.00	0.04	0.34089
87	presto/tpcds/q88	36815563.37	100302.40	36825665.82	144282.07	0.03	10102.45	0.27	0.39	0.89080
58	presto/tpcds/q59	16026663.34	0.00	16034301.43	17031.44	0.05	7638.09	0.00	0.11	0.29772
22	presto/tpcds/q23	45274231.89	9441.50	45298838.38	25381.91	0.05	24606.48	0.02	0.06	0.05021
37	presto/tpcds/q38	2219172.76	6.69	2220642.10	3597.81	0.07	1469.34	0.00	0.16	0.34072
53	presto/tpcds/q54	12016054.70	73060.44	12029382.87	55314.55	0.11	13328.16	0.61	0.46	0.72905
59	presto/tpcds/q60	1066864.14	0.00	1069460.67	6360.18	0.24	2596.53	0.00	0.59	0.34089
77	presto/tpcds/q78	30863381.54	624870.25	30998933.78	487198.86	0.44	135552.25	2.02	1.57	0.68404
28	presto/tpcds/q29	5073548.08	15212.91	5159256.24	213504.78	1.69	85708.16	0.30	4.14	0.34981
4	presto/tpcds/q05	8650289.42	858810.98	8992428.74	172452.75	3.96	342139.32	9.93	1.92	0.36125
31	presto/tpcds/q32	703914.75	567512.96	797601.42	796997.50	13.31	93686.67	80.62	99.92	0.81929
62	presto/tpcds/q63	3073686.90	0.00	4332617.31	1958864.45	40.96	1258930.42	0.00	45.21	0.14651
2	presto/tpcds/q03	2473116.27	0.00	3625457.69	1785199.67	46.59	1152341.41	0.00	49.24	0.14493

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